January 23, 2019

Mr. Jeff Gouveia
Bear Valley Water District
PO Box 5027
Bear Valley, California 95223

RE: Bear Valley Water District – Third Tri-Annual 2018 Groundwater Monitoring Report, WDRs Order No. 5-01-208 and R5-2005-0139.

Dear Mr. Gouveia:

Please find an electronic copy of the Third Tri-Annual 2018 Groundwater Monitoring Report as required by the revised Monitoring and Reporting Requirements of Order No. 5-01-208. Board staff have requested that all monitoring reports be submitted electronically and have a transmittal letter signed and dated by the discharger. Accordingly, please sign (and date) the attached form and re-attach to this report before emailing to the Regional Board by the **February 1st** deadline. The report should be emailed to centralvalleysacramento@waterboards.ca.gov.

Note that historical and third tri-annual 2018 groundwater monitoring data have been reviewed and analyzed in the preparation of this groundwater monitoring report.

Please contact me at your earliest convenience should you have any questions regarding the content of this report.

Sincerely,
STANTEC

Thomas W. Butler PG, CEG, CHG
Senior Hydrogeologist/Geochemist

Attachment – Third Tri-Annual 2018 Groundwater Monitoring Report (e-copy)

Monitoring Report Submittal Transmittal Form

Attn: Ms. Mary Boyd
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive #200
Rancho Cordova, CA 95670-6114

Discharger:	Bear Valley Water District
Name of Facility:	Bear Valley Wastewater Treatment and Disposal Facility
WDRs Order Number:	***5-01-208***
County:	Alpine County
Regulator Program:	Waste Discharge to Land (Non15)
Unit:	Compliance
CIWQS Place ID:	209035

The Bear Valley Water District is hereby submitting to the Regional Water Quality Control Board ("RWQCB") the following information:

Check all that apply:

- ☐ Annual Monitoring Report for the year __2018_____
- ☐ 1st / 2nd **(circle one)** Semi-annual Monitoring Report for the year _____
- ☐ 1st / 2nd / 3rd **(circle one)** Tri-Annual Monitoring Report for the year of__2018___
- ☐ Monthly Monitoring Report for the month of _____

During the monitoring period, there were / were not **(circle one)** violations of the WDR'S

1. The violations were:
   See Attached Report

2. The actions to correct the violations were:
   See Attached Report

Certification Statement
"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Signature: _____ Phone: (209) 753-2112

Printed Name: Jeff Gouveia
BVWD General Manager

Date: January 23, 2019

Bear Valley Water District – Third Tri-Annual 2018 Groundwater Monitoring Report

Prepared for:
Bear Valley Water District
PO Box 5027
Bear Valley, California 95223

Prepared by:
Stantec Consulting Services Inc.
1340 Treat Boulevard, Suite 300
Walnut Creek, California 94597

January 23, 2019

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1.0 Executive Summary

- Groundwater elevation monitoring during the third tri-annual monitoring event of 2018 indicates flow that was roughly perpendicular to site topography and generally towards the northwest at a horizontal gradient ranging from 0.072 to 0.079;

- Groundwater quality monitoring indicates pH (MW-3), iron (MW-1, MW-3, MW-4, and MW-6), and manganese (MW-1, MW-4, and MW-6) exceeded water quality goals for agricultural and/or potable use during the third tri-annual monitoring event. Monitoring wells MW-2 and MW-5 did not contain sufficient water to be sampled during the third tri-annual monitoring event.

- Revised background statistics were computed and the site-specific groundwater limitations updated as part of the Third Tri-Annual 2018 Groundwater Monitoring Report. Of all the constituents assessed tri-annually in 2018, iron and manganese (MW-1 and MW-6) were present at concentrations that may be considered above water quality objectives, at statistically significant levels. Conditions that naturally favor iron and manganese mobilization are present in shallow groundwater in the area, including acidic soils and naturally low pH. Thus, these exceedances should not be considered as irrefutable proof that an impact do to wastewater disposal has occurred. The background statistics will again be updated as part of the Third Tri-Annual 2019 Groundwater Monitoring Report.

- Statistical analysis indicates that all of the remaining parameters assessed in 2018, including: nitrate, ammonia, pH, boron, chloride, sodium, and total coliform were in compliance with site specific groundwater limitations, indicating further compliance with State's Anti-Degradation Policy;

- Only one background well exists and thus computed 2018 background statistics could not reasonably account for natural special variations in water chemistry common in shallow groundwater systems. Furthermore, surface water from a nearby stream may influence (likely through dilution) groundwater quality due to its close proximity to the shallow background monitoring well; and,

- Lack of a groundwater monitoring network that adequately accounts for spatial variations in background groundwater quality remains the most significant monitoring deficiency at the wastewater treatment and disposal facility. Should additional information be required regarding spatial changes in background water chemistry additional background well should be installed.

2.0 Introduction and Background

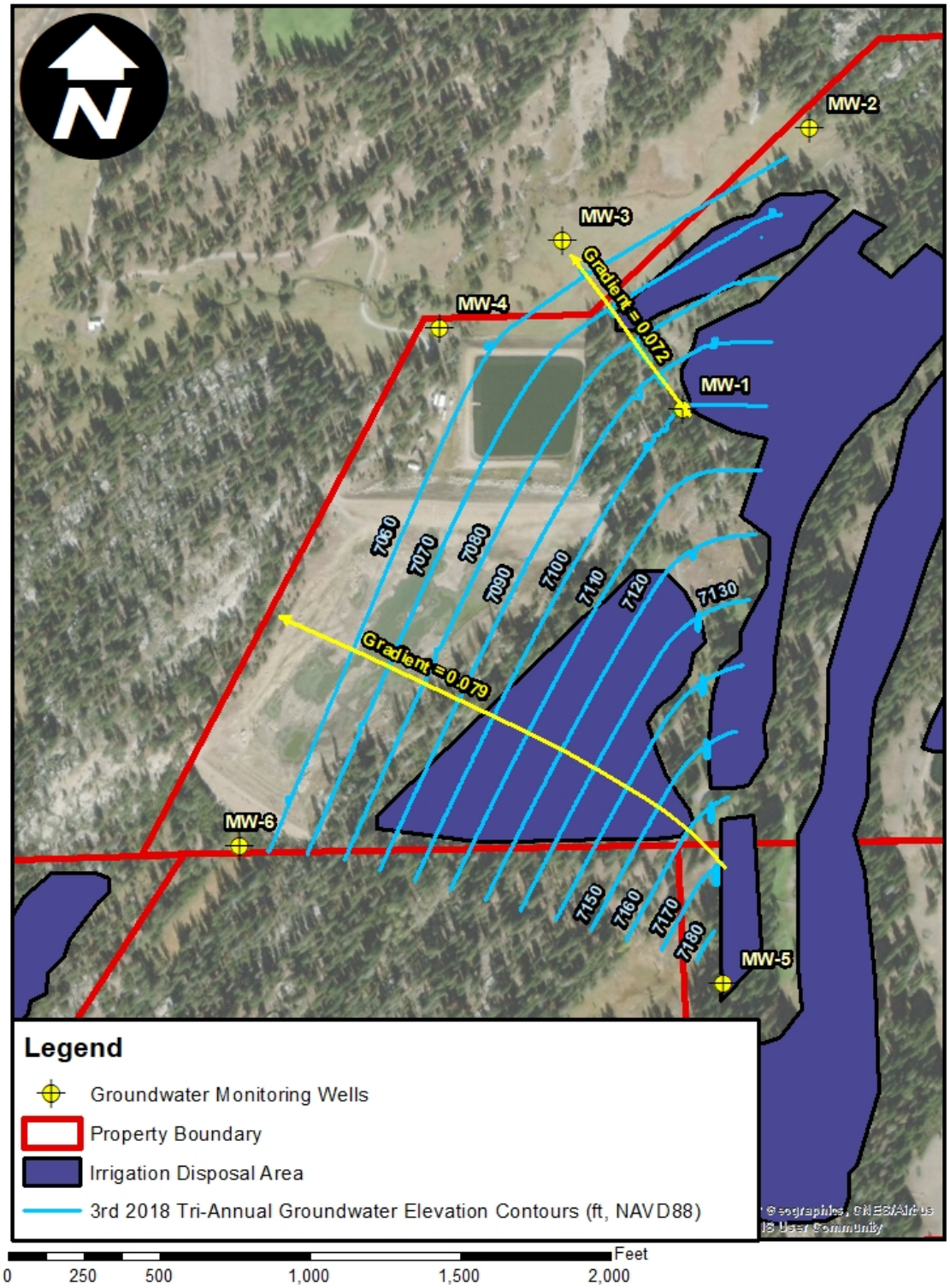
2.1 INTRODUCTION

The Bear Valley Water District (District) provides sanitary sewer collection, treatment and disposal for approximately 600 residential and commercial connections in the Alpine County community of Bear Valley, including the Lake Alpine basin area and the Mt. Reba Ski Area. The District's service area is primarily north of State Highway 4 serving the developed private lands in the Bear Valley village area and US Forest Service campgrounds and special use permitted areas. The District wastewater treatment and disposal facility (WWTF) is regulated by the Central Valley Regional Water Quality Control Board (Regional Board) and the Regional Board's Waste Discharge Requirements Order No. R5-2005-0139 and Order No. 5-01-208 (WDRs). The WWTF is located south of Highway 4 and is shown in Figure 1.

The District's WDRs contain monitoring and reporting requirements, which include tri-annual monitoring of groundwater. This report presents groundwater monitoring data obtained during the third tri-annual monitoring event, which was conducted on October 10, 2018 and satisfies the Tri-Annual Groundwater Monitoring Report reporting requirements as specified in the District's Revised Monitoring and Reporting Program for WDR Order No. R5-2005-0139 (MRP). The revised MRP states that groundwater monitoring reports shall be submitted "by the 1st day of February, July, and September of each year", corresponding to combined *annual/third tri-annual, first tri-annual, and second tri-annual reporting* periods, respectively. It should be noted that these reporting periods do not correspond to climate and related environmental conditions that prohibit site access and well sampling during certain times of the year and therefore the actual report submittal may vary from that which is stipulated in the MRP.

Regional Board staff's recognition of these climate controls was memorialized in the *July 31, 2012* email correspondence. In summary, that correspondence stated that Regional Board staff will not recommend enforcement to the Executive Officer so long as the 1st and 2nd tri-annual monitoring reports are submitted by September 1st and November 1st of each year, respectively, instead of the dates currently required in the MRP. The third tri-annual report will remain due by February 1st. Although Regional Board staff have informally agreed to extend tri-annual monitoring report due dates by not seeking enforcement (provided the 1st and 2nd tri-annual reports are submitted by September 1st and November 1st, respectively), we further recommend that Regional Board staff formally memorialize these changes in the MRP at their earliest convenience, in order to assure further violations and potential related enforcement actions against the District do not occur.

Figure 1 Third Tri-Annual 2018 Groundwater Elevation Contour Map



2.2 BACKGROUND

An average flow of 0.059 million gallons per day (MGD) entered the District WWTF during the 2017 – 2018 water year, which was then treated in a series of aerated treatment ponds where the biodegradable constituents are consumed and/or sequestered. Effluent from the aerated ponds was then stored in a 106 MG reservoir (effluent storage pond) or applied directly to land (summer months only). During the summer months, the stored effluent may be disposed of through spray irrigation to approximately 120 acres of permitted land, including approximately 80 acres of leased land and approximately 40 acres of land authorized by a Special Use Permit from the US Forest Service. Of the 120 gross acres of land, approximately 80 acres (40 from each disposal area) are currently suitable and/or used for effluent disposal purposes. The leased disposal area and permitted US Forest Service land have been in service before the installation of the groundwater monitoring wells (approximately 25 years for the leased land) at the site.

Effluent disposal via spray irrigation involves the disbursement of the effluent through low impact sprinklers upon soils and vegetation within the disposal area. The water is allowed to percolate into the soil and evapotranspirate into the atmosphere. The WDRs currently limit influent flow to 0.1 MGD (annual average basis) and limit application of wastewater to reasonable rates considering soil, climate and the irrigation management system.

2.3 GEOLOGY

The District's WWTF is located west of the Sierra crest along Bloods Creek, a tributary of the North Fork of the Stanislaus River. The elevations range from 7080 ft (msl) at the treatment pond to 7480 ft (msl) at the ballast pond on top of the ridge, east of the treatment and storage ponds. The geologic map for the Sacramento quadrangle (Wagner, Jennings, Bedrossian and Bortugno, 1981) indicates that Mesozoic granites underlie the area. This was confirmed by the presence of numerous granite outcrops in the meadows and at the base of the ridge. The map also shows traces of the Tertiary Mehrten Formation, described as an andesitic conglomerate, sandstone, and breccia. Although a competent outcrop of andesitic rock was not observed, the ridge does contain numerous andesitic fragments, produced by parent rock weathering. Just below the eastern side of the ridge crest are numerous large granite boulders, potentially representing glacial transport and deposition.

2.4 SOILS

The following soil descriptions are taken from the 1981 U.S. Forest Service soil survey of the Stanislaus National Forest. The descriptions are in agreement with field observations at the site and include the following:

2.4.1 Ridge Top

The soil along the southern end of the ridge top is classified as a lithic cryumbrept. This soil is described as a tan, moderately acid, loam about 5 inches thick, and containing no substantive

subsoil. Rock content can range up to 60 percent from the substratum of fractured hard andesitic tuff or tuff-breccia. The soil has excessive drainage with moderately rapid permeability and a very high maximum erosion hazard. The soil supports basin sagebrush, mule's ear, perennial grasses, and scattered lodgepole pine.

2.4.2 Ridge Side

The soil along the disposal area, on the west side of the ridge, is classified as a gerle family generally found on 5 to 35 percent slopes. The surface soil is described as a dark gray, slightly acid, sandy loam, about 10 inches thick. The subsoil is described as a moderately acid, light brownish gray, sandy loam. The substratum is extremely stony (rock content can exceed 35%) consisting of glacial debris derived from granitic parent rocks. Additionally, the soil has excessive drainage, rapid permeability, and a moderate to high maximum erosion hazard, typically supporting mixed conifer forests.

2.4.3 Valley Floor

The valley floor soil, north of and below the treatment pond, is classified as an entic cryumbrept and described as a brown, moderately acid loam, sandy loam, and loamy sand, about 40 inches in thickness. The substratum is recent alluvium from granitic rocks and is well drained with moderately rapid to rapid permeability. It supports annual grasses, perennial grasses or sedge, and brush.

2.4.4 Field Observations

There is a good correlation between the topography of the disposal area and soil development and thickness. Mass wasting and in place weathering/deposition created a soil continuum that one can easily recognize and follow from the ridge top to the valley floor. Starting at the top of the ridge the soil is thin and scarcely present. What soil exists is very shallow, poorly developed, poorly sorted, contains no appreciable organic matter, and has a large percentage of andesitic rock fragments. The thickness of the soil increases as one moves down slope with more organic content being observed, correlating well with increased vegetation. Although the soil is still poorly sorted, it increasingly becomes more uniform towards a sandy loam with granitics composing more of the parent material. On the valley floor the soil contains organic material and is at its maximum development and thickness within the disposal area. The alluvial substratum is well-sorted sand with the parent material consisting of mostly granitic rock, with only a minor andesitic contribution. The granitic origin is marked by numerous small mica flakes, found within the soil profile.

3.0 Groundwater Regulatory Requirements

Discharge at the Bear Valley Water District WWTF is subject to requirements contained in the wastewater permit (Waste Discharge Requirements, or WDRs), Standard Provisions and Reporting Requirements for Waste Discharge Requirements 1 March 1991, the Water Quality Control Plan for the California Regional Water Quality Control Board, Central Valley Region and associated documents (Basin Plan). These requirements and policies are discussed below as they relate to discharges to land and the groundwater limitations at the WWTF.

3.1 WATER QUALITY OBJECTIVES AND BASIN PLAN REQUIREMENTS

The Central Valley Basin Plan contains water quality objectives for groundwater. These water quality objectives apply to all groundwater in the San Joaquin River Basin, though they do not require improvement over naturally occurring background concentrations. The groundwater objectives are:

- Bacteria – total coliform organisms shall be less than 2.2 MPN/100ml over any seven-day period.
- Groundwater shall not contain chemical constituents that adversely affect beneficial uses.
- At a minimum, groundwater designated for municipal use shall not contain chemical constituents in concentrations greater than the maximum contaminant levels (MCLs) contained in Title 22 of the California Code of Regulations. To protect all beneficial uses, the Regional Board may apply limits more stringent than the MCLs.
- At a minimum, groundwater designated for municipal use shall not contain concentrations of radionuclides in excess of the MCLs contained in Title 22 of the California Code of Regulations.
- Groundwater shall not contain taste or odor constituents that cause nuisance or adversely affect beneficial uses.
- Groundwater shall be maintained free of toxic substances in concentrations that produce detrimental physiological response…

In conjunction with the Basin Plan groundwater objectives, the Regional Board has compiled water quality goals in the Regional Board staff report *A Compilation of Water Quality Goals,* updated in July of 2008. This report is intended to assist interpretation of the above narrative water quality objectives.

3.2 ANTIDEGRADATION POLICY

In 1968, the State Water Resources Control Board adopted Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California, or the State

Antidegradation Policy. The Antidegradation policy requires that whenever the quality of waters is better than the water quality standards or water quality objectives, and a discharge does or reasonably has the potential to degrade the high quality water, then such degradation must:

- Not unreasonably affect beneficial uses, i.e., cause the water to exceed water quality standards or water quality objectives; and
- Be consistent with the best practicable treatment and control technology such that the highest water quality is maintained consistent with the maximum benefit to the people of the State.

The Antidegradation Policy applies to surface water and groundwater.

3.3 BEAR VALLEY WATER DISTRICT WASTE DISCHARGE REQUIREMENTS

The current District WDRs (Order No. 5-01-208 section D) have groundwater limitations that state:

1. Release of waste constituents from any storage or treatment component associated with the WWTF shall not cause groundwater under and beyond the storage or treatment component, as determined by an approved monitoring network, to:

   a. Contain any of the constituents (identified in Table 1) in concentrations greater than as listed or greater than background quality, whichever is greater.

   b. Contain any constituent identified in Groundwater Limitation D.1.a in concentrations greater than background quality (whether chemical, physical, biological, bacteriological, radiological, or some other property of characteristic).

   c. Exhibit a pH of less than 6.5 or greater than 8.5 pH Units.

   d. Impart taste, odor, or color that creates nuisance or impairs any beneficial use.

2. a. Release of waste constituents from any land disposal area associated with the WWTF shall not cause groundwater under and beyond the land disposal area to contain waste constituents in concentrations statistically greater than background water quality, except for coliform bacteria. For coliform bacteria, increases shall not cause the most probable number of total coliform organisms to exceed 2.2 MPN/100ml of any 7-day period.

   b. If groundwater monitoring shows that waste constituents are present in concentrations greater than background, then upon the request of the Executive Officer, the Discharger shall complete the report described in Provision F.3.

Table 1 Regional Board Interim Groundwater Limitations

Parameter	Units	Interim Limitation*
pH	Std. units	6.5 – 8.4**
Boron	mg/l	0.6
Chloride	mg/l	142
Iron	mg/l	0.3
Manganese	mg/l	0.05
Sodium	mg/l	69
Total Coliform Organisms	MPN/100ml	Non-Detect
Total Dissolved Solids	mg/l	450
Total Nitrogen	mg/l	10
Nitrite as N	mg/l	1
Nitrate as N	mg/l	10
Ammonia as N	mg/l	0.5

* From Waste Discharge Requirements Order No. 5-01-208
**From a Compilation of Water Quality Goals, July 2008

4.0 Groundwater Monitoring Results

4.1 MONITORING SUMMARY

The third tri-annual groundwater monitoring event occurred on October 10, 2018 with sampling being performed by District staff and analytical activities being performed by Alpha Analytical Laboratories Inc. The sampling procedure utilized in monitoring the District's wells is included as Appendix A of this report for reference. Field measurements of depth to groundwater, electrical conductivity (EC), pH, and temperature were conducted in addition to the laboratory analysis of the parameters identified in Table 2 and according to the revised Monitoring and Reporting Program (MRP) No. 5-01-208, dated June 20, 2002. Groundwater samples were also collected for expanded general mineral chemistry, the results of which are summarized in Table 3. The field logs and laboratory results for the third tri-annual sampling event are included as Appendix B of this report.

Table 2 Groundwater Monitoring Requirements

Parameter	Units	Frequency[1]
Total Dissolved Solids	mg/l	3 times per year
Nitrate as Nitrogen	mg/l	3 times per year
pH	pH units	3 times per year
Total Coliform Organisms[2]	MPN/100ml	3 times per year
Ammonia	mg/l	3 times per year
Total Kjeldahl Nitrogen	mg/l	3 times per year
General Minerals[3]	mg/l	1 time per year

1. Immediately after snowmelt, in the middle of the summer, and in the fall (shortly before wells become inaccessible due to snow cover.)
2. Method No. 9221E, using a minimum of three dilutions of 15 tubes.
3. General minerals include boron, chloride, iron, manganese, and sodium, collected during the fall.

Table 3 Third Tri-Annual 2018 Groundwater Quality Summary

Parameter	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6
Field pH	6.7	IVS	**6.1**	6.8	IVS	7.0
Field EC (µS/cm)	198		81	205		555
Temp. (C)	5.1		7.2	6.9		5.9
NO3-N (mg/L)	2.8		<0.2	3.0		1.0
TKN (mg/L)	<1		<1	<1		<1
Ammonia as N	<0.2		<0.2	<0.2		<0.2
TDS (mg/L)	160		73	150		310
Total Coliform (MPN/100ml)	<1.8		<1.8	<1.8		<1.8
B (mg/L)	<0.2		<0.2	<0.2		<0.2
Fe (mg/L)	**14**		**1.0**	**1.4**		**7.3**
Mn (mg/L)	**1.4**		0.02	**0.09**		**3.2**
Na (mg/L)	9.3		6.2	8.2		16
Cl (mg/L)	1.7		4.5	7.0		7.2

Bold data indicates and simple exceedance of a water quality goal, not to be confused with a statistically significant exceedances. IVS – Insufficient volume of water available to sample.

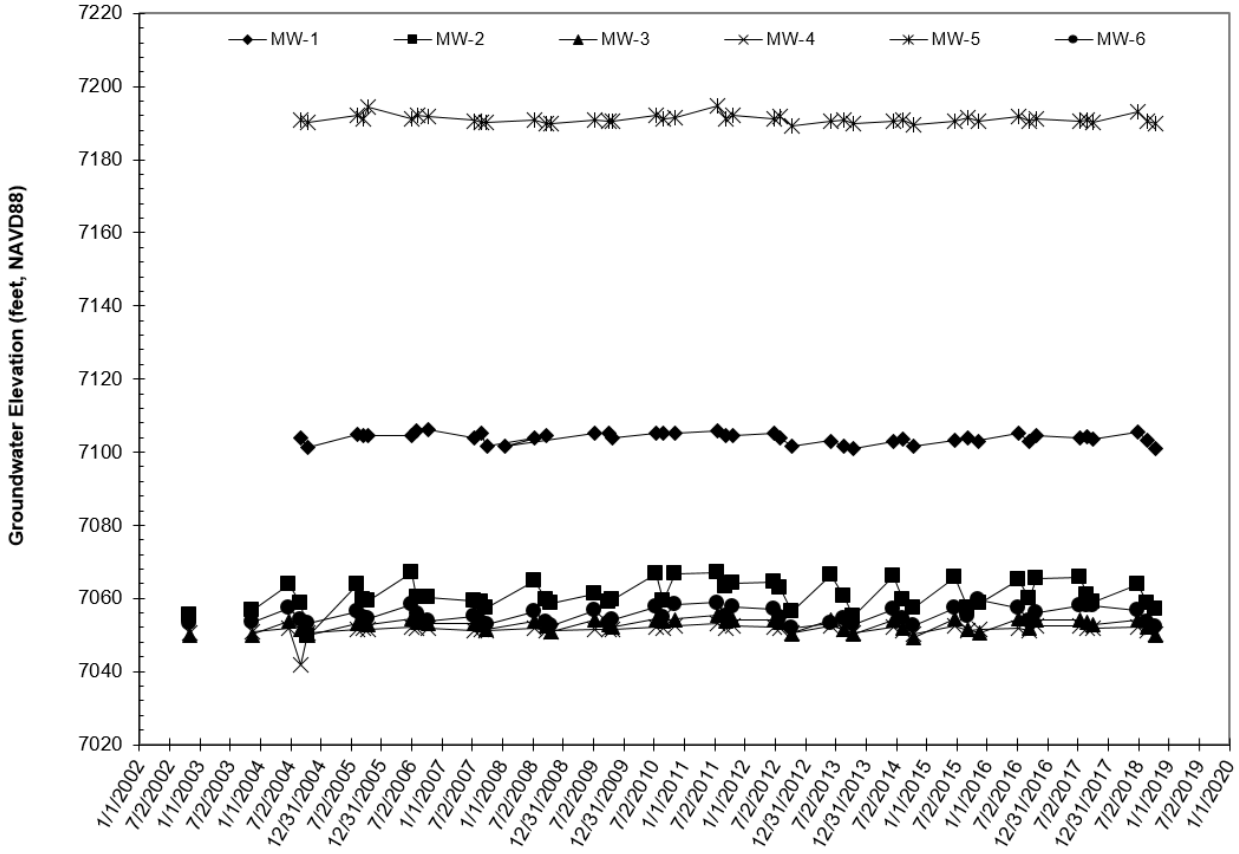
4.2 GROUNDWATER ELEVATIONS, GRADIENTS, AND FLOW DIRECTION

Depth to groundwater was measured on October 10, 2018 relative to the surveyed top north quadrant of the PVC well casing. Groundwater elevations were subsequently calculated for the third tri-annual monitoring event and summarized in Table 4 below. Table 4 also contains groundwater elevations from the three previous monitoring events and provides the computed change in elevation at each well (in parentheses) relative to the previous monitoring event, illustrating recent temporal variability in groundwater elevation at the WWTF. Calculated groundwater elevations for the third tri-annual 2018 monitoring event were utilized to construct a contour map (Figure 1), which was subsequently used to estimate both groundwater flow direction and horizontal gradient. Interpreted groundwater flow direction during the third tri-annual monitoring was found to be roughly perpendicular to site topography and generally towards the northwest at a horizontal gradient ranging from 0.072 to 0.079 (Figure 1). Historical groundwater elevations are provided as Appendix C, while a time series plot for computed groundwater elevations is provided as Figure 2, for further reference.

Table 4 Groundwater Elevation Summary

Monitoring Well	Reference Point Elevation (ft, NAVD88)	Groundwater Elevation (feet , NAVD88)			
		9/28/2017	6/29/2018	8/23/2018	10/10/2018
MW-1	7114.08	7103.63 (-0.60)	7105.38 (+1.75)	7103.27 (-2.11)	7100.97 (-2.30)
MW-2	7067.53	7059.08 (-1.88)	7063.93 (+4.85)	7058.73 (-5.20)	7056.96 (-1.77)
MW-3	7056.37	7052.84 (-0.71)	7054.17 (+1.33)	7052.07 (-2.10)	7049.83 (-2.24)
MW-4	7054.79	7051.77 (-0.20)	7052.19 (+0.42)	7051.34 (-0.85)	7050.38 (-0.96)
MW-5	7203.78	7190.14 (-0.81)	7193.08 (+2.54)	7190.65 (-2.43)	7189.82 (-0.83)
MW-6	7059.49	7057.91 (+0.07)	7056.69 (-1.22)	7053.49 (-3.20)	7052.06 (-1.43)

Figure 2 Groundwater Elevation Time Series Chart



4.3 GROUNDWATER QUALITY

Groundwater samples for the third tri-annual monitoring event were collected on October 10th, 2018. A summary of the lab and field results for this monitoring event are provided above in Table 3, while historical groundwater quality data are provided in Appendix C for further reference. Historical and third tri-annual data were compiled in time series plots for TDS (Figure 3) and chloride (Figure 4) to illustrate temporal variations in groundwater salinity at the site.

Figure 3 TDS Time Series Chart

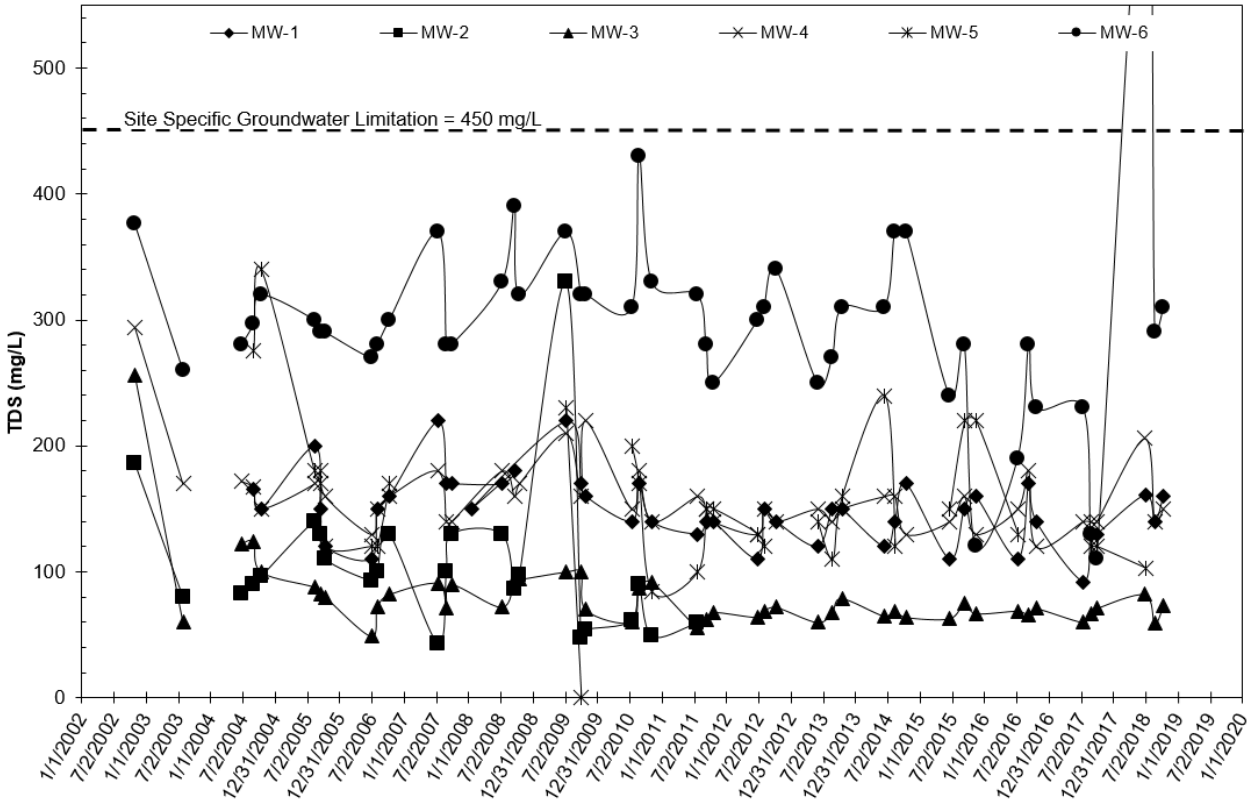
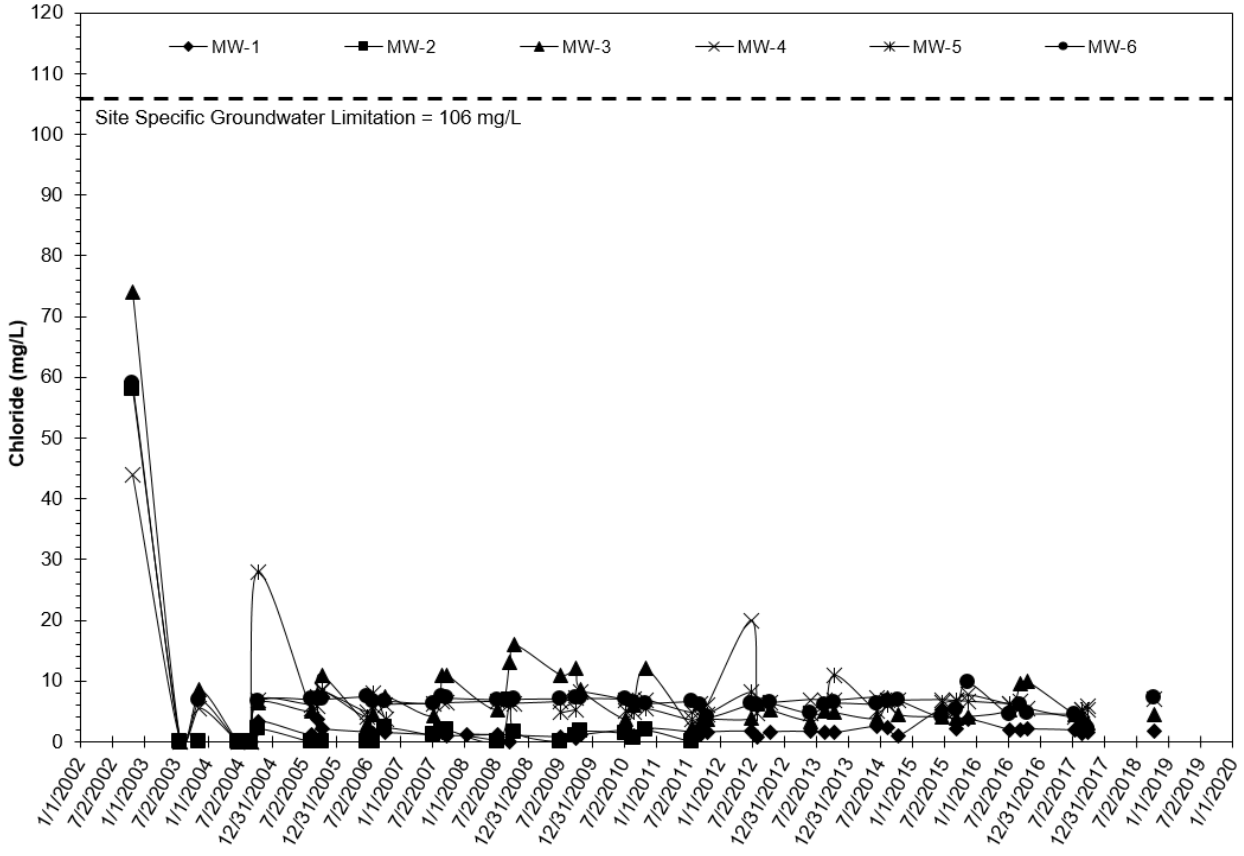


Figure 4 Chloride Time Series Chart



4.3.1 Compliance Monitoring Well MW-1

Monitoring well MW-1 is generally located hydrogeologically down gradient of wastewater disposal operations and hydrogeologically up gradient of the eastern portion of the treatment pond (Figure 1). Field pH, field EC, and laboratory determined TDS measured during the third tri-annual monitoring event were reported at values of 6.7, 198 µS/cm, and 160 mg/l, respectively. Nitrate as N was detected at a concentration of 2.8 mg/l, while ammonia as N was not detected above its laboratory reporting limit of 0.2 mg/l. Iron and manganese were detected at concentrations of 14 and 1.4 mg/l, respectively. Furthermore, total coliform organisms were not detected above the laboratory reporting limit of 1.8 MPN/100ml.

Additional parameters monitored during the third tri-annual monitoring event of 2018 are summarized in Table 3 for reference.

4.3.2 Background Monitoring Well MW-2

Monitoring well MW-2 is located hydrogeologically up gradient of the disposal areas and serves as the background monitoring well for the WWTF (Figure 1). Monitoring well MW-2 pumped

dry shortly after beginning to purge and thus did not have a sufficient volume of water to sample during the third tri-annual monitoring event of 2018.

4.3.3 Compliance Monitoring Well MW-3

Monitoring well MW-3 is located hydrogeologically down gradient of wastewater disposal operations, near the northwestern portion of the WWTF property (Figure 1). Field pH, EC, and laboratory determined TDS measured during the third tri-annual monitoring event were reported at values of 6.1, 81 µS/cm, and 73 mg/l, respectively. Nitrate as N and ammonia as N were not detected above their respective laboratory reporting limits, while iron and manganese were detected at concentrations of 1.0 and 0.02 mg/l, respectively. Furthermore, total coliform organisms were not detected above the laboratory reporting limit of 1.8 MPN/100ml.

Additional parameters monitored during the third tri-annual monitoring event of 2018 are summarized in Table 3 for reference.

4.3.4 Compliance Monitoring Well MW-4

Monitoring well MW-4 is located hydrogeologically down gradient of wastewater disposal operations and the wastewater treatment pond, near the northwestern portion of the WWTF property (Figure 1). Field pH, EC, and laboratory determined TDS measured during the third tri-annual monitoring event were reported at values of 6.8, 205 µS/cm, and 150 mg/l, respectively. Nitrate as N was detected at a concentration of 3 mg/l, while ammonia as N was not detected above its laboratory reporting limit. Iron and manganese were reported at concentrations of 1.4 and 0.09 mg/l, respectively. Furthermore, total coliform organisms were not detected above the laboratory reporting limit of 1.8 MPN/100ml.

Additional parameters monitored during the third tri-annual monitoring event of 2018 are summarized in Table 3 for reference.

4.3.5 Compliance Monitoring Well MW-5

Monitoring well MW-5 is located hydrogeologically down gradient of wastewater disposal operations, near the south-central portion of the WWTF property (Figure 1). Monitoring well MW-5 pumped dry shortly after beginning to purge and thus did not have a sufficient volume of water to sample during the third tri-annual monitoring event of 2018.

4.3.6 Compliance Monitoring Well MW-6

Monitoring well MW-6 is located hydrogeologically down to cross gradient of wastewater disposal operations and down gradient/adjacent to the effluent storage pond, near the southwestern portion of the WWTF property (Figure 1). Field pH, EC, and laboratory determined TDS measured during the third tri-annual monitoring event were reported at values of 7.0, 555 µS/cm, and 310 mg/l, respectively. Nitrate as N was detected at a concentration of 1

mg/l, while ammonia as N was not detected above its laboratory reporting limit. Iron and manganese were reported at concentrations of 7.3 and 3.2 mg/l, respectively. Furthermore, total coliform organisms were not detected above the laboratory reporting limit of 1.8 MPN/100ml.

Additional parameters monitored during the third tri-annual monitoring event of 2018 are summarized in Table 3 for reference.

5.0 Background Groundwater Quality Summary

5.1 STATISTICAL ANALYSIS INTRODUCTION

On behalf of the District, ECO:LOGIC Engineering (now Stantec) submitted a Groundwater Characterization Report (GCR), in *January 2005*. This report was submitted in accordance with the District's WDRs and the Regional Board's *July 8, 2004* Technical Report Review and Comments letter requesting a statistical determination of background groundwater quality, pursuant to Title 27, Section 20415(e)(10) of the California Code of Regulations. The report compared actual COPC concentration at each of the compliance wells to both the Regional Board's Interim Groundwater Limitations and calculated background COPC using the 95% Confidence Limit (CL). As part of the 2006 Annual Report, the statistical assessment was revised via an alternative methodology utilizing the 99% upper prediction limit (UPL) for parametrically distributed data, combined with alternative tests for non-parametric data. The background groundwater quality assessment has been updated annually since 2006. The analysis provided below represents the most current update to the statistical assessment of background groundwater quality, utilizing data collected through the third tri-annual monitoring event of 2018.

The following provides a summary of the assumptions used to compute the 99% UPL of background groundwater quality:

- Statistical analysis performed annually;
- Statistical test performed for the parameters TDS, nitrate, ammonia, pH, total coliform, boron, chloride, iron, sodium, and manganese;
- Data collected during the year of 2003 and earlier were not assessed due in part to several factors including the influence of well drilling activities and lack of filtration for metals. All data following 2003 were included in the statistical analysis;
- A pass 1 of 3 re-sampling strategy was employed; and,
- Maximum reported value, not reflective of an unreasonable anomaly, used to represent background groundwater quality for non-parametric data.

5.2 OUTLIER ANALYSIS

Prior to the evaluation of background groundwater quality, all background data (MW-2) were reviewed using Dixon's test (where n is between 3 and 25) or Rosner's test (for n > 25) for statistically significant outliers at the 99% confidence limit. The following provides a summary of the identified outliers and any actions taken.

Field pH: No outliers identified.

TDS: One statistical outlier was identified during the 7/7/09 monitoring event. The results are anomalously high and do not correspond with the reported EC values, suggesting a laboratory error. The reported outlier was subsequently removed.

Nitrate as N: Four outliers were identified and were reviewed and found to be close or at the reporting limit. The outliers were thus determined to be reasonable and subsequently retained for further analysis.

Ammonias as N: Seven outliers were identified and were reviewed and found to be close to the reporting limit. The outliers were thus determined to be reasonable and subsequently retained for further analysis.

Total Coliform: Four outliers were identified and during the 8/24/17, 10/26/09, 11/4/10, and 8/24/17 monitoring events. The outliers were reviewed, determined to be representative of the range of detected values, and thus retained for further analysis.

Boron: No outliers identified.

Chloride: Two statistical outlier were identified and during the 9/18/08 and 10/9/2012 monitoring events. These data were reviewed and no anthropogenic cause could be attributed to the anomalies. Accordingly, they were retained for further analysis.

Iron: No outliers identified.

Sodium: Two statistical outliers were identified and during 9/18/08 and 10/9/12 monitoring events. These outliers were reviewed and no anthropogenic cause could be attributed to the anomalies. Accordingly, they were retained for further analysis.

Manganese: Seven statistical outliers were identified during the 10/13/04, 8/29/07, 7/21/11, 10/9/12, 8/21/13, 10/14/14, and 7/13/17 monitoring events. These outliers were reviewed and no anthropogenic cause could be attributed to the anomalies. Accordingly, they were retained for further analysis.

5.3 NORMALITY TEST

Following the outlier analysis a normality test was performed using Shapiro-Wilks Test at the 99% level of confidence. If the background monitoring data were normally distributed, or could be made normal through an appropriate transformation, parametric tests were applied. Alternatively, if the data were found to be non-parametrically distributed, non-parametric statistical tests were used. Following the initial data review, as summarized above, 99% background UPLs were computed, based on inclusion of the most recent 2018 monitoring data the results of which are summarized in Table 5.

Table 5 2018 Statistical Assessment of Background Groundwater Quality

COPC	Background 99% UPL	Data Distribution/Method	Data Points
TDS (mg/l)	124	Parametric UPL (Natural Log Transformed)	43
Nitrate as N (mg/l)	0.5	Non-Parametric UPL	44
Ammonia as N (mg/l)	1	Non-Parametric UPL	44
pH	**5.6** – 7.2	Parametric UPL	42
Total Coliform (MPN/100ml)	**2200**	Non-Parametric UPL	44
Boron (mg/l)	0.03	Non-Parametric UPL	40
Chloride (mg/l)	2.5	Parametric UPL (Natural Log Transformed)	40
Iron (mg/l)	**1.54**	Non-Parametric UPL	42
Sodium (mg/l)	8.6	Non-Parametric UPL	40
Manganese (mg/l)	**0.22**	Non-Parametric UPL	42

Bold data indicate an exceedance of the Regional Board's Interim Groundwater Limitations

5.4 SITE SPECIFIC GROUNDWATER LIMITATIONS

For COPC's where the background 99% UPL or non-parametric statistics are greater than the Regional Board's Interim Groundwater Limitation, the background statistic should be used for facility compliance. Of the COPCs analyzed, computed background (MW-2) statistics for iron, manganese, and total coliform exceeded the Regional Board's Interim Groundwater Limitations of 0.3 mg/l, 0.05 mg/l, and non-detect, respectively. Furthermore, background pH values were statistically lower than the lower limit of the groundwater goal of 6.5. Conversely, where an Interim Groundwater Limitation is greater than the background statistic, the Interim Groundwater Limitation should be used to assess facility compliance, as was the case for all the remaining parameters, provided the facility is implementing best practicable treatment and control measures for the constituent of potential concern. It should be noted however, that the WDR Interim Groundwater Limitations for boron and chloride are inconsistent with agricultural water quality goals and were revised accordingly. Table 6 presents the recommended site specific groundwater limitations for the facility.

Table 6 2018 Recommended Site Specific Groundwater Limitations

COPC	Site Specific Groundwater Limitation	Basis for Limitation	Compliance Assessment Methodology
TDS (mg/l)	450	Agricultural Water Quality Goal	95% LCL
Nitrate as N (mg/l)	10	Primary Maximum Contaminant Level	Not to exceed
Ammonia as N (mg/l)	1.5	Taste and Odor Threshold	95% LCL
pH	**5.6** – 8.4	STAT Parametric UPL/Agricultural Water Quality Goal	Pass 1 of 3/ 95% LCL
Total Coliform (MPN/100ml)	**2200**	STAT Non-Parametric UPL	Not to exceed
Boron (mg/l)	0.7	Agricultural Water Quality Goal	95% LCL
Chloride (mg/l)	106	Agricultural Water Quality Goal	95% LCL
Iron (mg/l)	**1.54**	STAT Non-Parametric UPL	Not to exceed
Sodium (mg/l)	69	Agricultural Water Quality Goal	95% LCL
Manganese (mg/l)	**0.22**	STAT Non-Parametric UPL	Not to exceed

Bold data indicate an exceedance of the Regional Board's Interim Groundwater Limitations

5.5 ANTI-DEGRADATION ASSESSMENT

In evaluating facility compliance, the UPL methodology is not appropriate for statistically assessing compliance with water quality goals based on MCLs or agricultural limitations (such as those used in determining Interim Groundwater Limitations) because many of these goals are based on long term averages of water quality. Accordingly, the 95% lower confidence interval (LCL) about the mean is recommended (95% LCL for two-tailed test for pH) and is appropriate for assessing compliance with the parameters TDS, ammonia, upper pH, boron, chloride, and sodium, which were based on unrestricted agricultural use or taste and odor thresholds. However, where a parametric 99% UPL serves as the site specific groundwater limitation, the pass 1 of 3 re-sampling should be used to assess compliance (that is if one sample of the past three is less than the limitation, no statistically significant impact is noted). Alternatively, for non-parametric tests, a simple exceedance of the site specific groundwater limitation may indicate a statistically significant impact. Table 7 summarizes the results of the compliance assessment.

Table 7 2018 Groundwater Monitoring Compliance Summary

COPC	Site Specific Groundwater Limitation	Compliance Assessment Methodology	2018 Statistically Significant Exceedance
TDS (mg/l)	450	95% LCL	None
Nitrate as N (mg/l)	10	Not to Exceed	None
Ammonia as N (mg/l)	1.5	95% LCL	None
pH	**5.7** – 8.4	Pass 1 of 3/ 95% LCL	None
Total Coliform (MPN/100ml)	**2200**	Not to Exceed	None
Boron (mg/l)	0.7	95% LCL	None
Chloride (mg/l)	106	95% LCL	None
Iron (mg/l)	**1.54**	Not to Exceed	MW-1 and MW-6
Sodium (mg/l)	69	95% LCL	None
Manganese (mg/l)	**0.22**	Not to Exceed	MW-1 and MW-6

Of the parameters assessed, manganese and iron were detected in groundwater at levels that statistically exceed site specific groundwater limitations during 2018. The exceedances occurred at monitoring wells MW-1 and MW-6. Both iron and manganese are elements that forms pH and redox sensitive minerals in the subsurface, which can become mobile under reducing conditions and in groundwater with low pH, both of which are not uncommon in alpine groundwater environments. For instance, the dilute nature and lack of buffering capacity of alpine groundwater (primarily snowmelt) and presences of acidic surface soils bode well for low pH groundwater, a condition that naturally favors manganese mobilization. Coliform another parameter that is sometimes detected is ubiquitous on the surface of the earth and can be present in groundwater where a conduit, such as a fracture connected to the surface, exists. Furthermore, coliform can be introduced during sampling from contaminated equipment, introduced water, or windblown sediment/colonies. Therefore, the presence of iron, manganese or coliform in groundwater should not in of themselves be considered irrefutable proof of wastewater impacts.

Caution should also be exercised when evaluating computed "background" groundwater values to that of down gradient monitoring locations as the computed background statistics only consider one datum (MW-2) and thus, does not account for natural spatial variations in groundwater quality in the area. Spatial variability of the quality of shallow groundwater is more the norm than the exception and can be attributed to a host of issues including, but not limited to, soil column thickness, soil composition, bedrock composition, grain size distribution, organic matter content, groundwater elevation, acidity/alkalinity, land use, and redox potential. As such quantitative interpretation or comparison of groundwater data collected at "down gradient" monitoring locations to only one background location for the purpose of assessing facility compliance is not recommended. The computed background statistics and site specific

groundwater goals should thus be used only to identify areas which *may have* been impacted with current or historic wastewater disposal practices. If improved background statistics are required, additional monitoring wells should be installed at locations up and cross gradient of the waste discharge.

All of the parameters assessed, with the potential exception of manganese and coliform, were in compliance with the site specific groundwater limitations, indicating further compliance with regards to the State's Anti-Degradation Policy.

6.0 Summary and Conclusions

Groundwater was assessed during the third tri-annual monitoring event, pursuant to the District's WDRs and MRP, issued by the Regional Board. During the third tri-annual monitoring event, reported water quality values for the following constituents exceeded water quality goals for agricultural and/or potable use at the locations indicated, including:

- pH (below the lower limit): MW-3;
- Iron: MW-1, MW-3, MW-4, and MW-6;
- Manganese: MW-1, MW-4, and MW-6; and,
- MW-2 and MW-5 did not contain sufficient water to permit sampling.

A revised 2018 annual statistical analysis indicates statistically significant exceedances of site specific groundwater limitations occurred for iron and manganese at MW-1 and MW-6. Dissolved iron and manganese are both commonly spatially transient and can be influenced by variables other than the disposal of effluent. It should be noted that the current groundwater monitoring network contains only one background monitoring well (MW-2) making it impossible to incorporate potential spatial variations into the background statistics. Accordingly, a statistically significant impact should not be considered irrefutable proof that the impact originated as a result of the discharge. Regardless, a revised statistical assessment will be conducted as part of the Third Tri-Annual 2019 Groundwater Monitoring Report, which will also include a revised assessment of background groundwater quality.

7.0 Professional Seals and Certifications

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Thomas W. Butler, PG, CHG, CEG
Senior Hydrogeologist/Geochemist

Appendix A Groundwater Monitoring Protocol

Bear Valley Water District
Groundwater Monitoring Well Sampling Procedures

1) The covers of the monitoring wells were opened and loose material cleared from the edged. A propane torch was used to briefly burn the frame of the cover and any debris inside the box and around the well casing (i.e., eliminating potential contamination of samples from ants). The wells are 2-in PVC approximately 13.5 to 23.5 feet deep with the lower 10 to 15 feet screened. The compression cap was removed and placed top down on the well cover.

2) Water surface depth was measured to within 0.01 feet by lowering an electronic tape into the well while passing it through a cloth soaked in hypochlorite solution (the tape was cleaned and disinfected in the lab prior to bringing it to the field). The water depth was measured relative the top of the north quadrant of the PVC well casing. More than three well volumes were purged from the wells until pH, EC and temperature stabilized. The volume to purge was calculated based on the well casing diameter (area) times the water column height (well depth from well logs minus depth to water surface times three. no annular space estimate was included).

3) Dedicated 12V submersible plastic pumps (ES 60) with a vinyl discharge hose were used for purging and sampling the wells. The pump, hose and cord were decontaminated prior to transport to the field in deionized (D.I.) water plus detergent, and then rinsed three times in D.I. water (running the pump during each to flush water through the impeller and hose) and finally the pump and appurtenances were placed in a dilute hypochlorite solution (running the pump to flush the solution through the impeller and hose). The pump and hose were removed from sealed bins and lowered into the well, avoiding pump or hose touching the cover frame, ground etc. The technician used rubber gloves during sampling and changed them each time anything "dirty" was touched. New gloves were rinsed in chlorine solution prior to handling equipment.

4) After priming and pumping a small amount of water through the hose (to remove and remaining liquid in the hose), the discharge rate was measured, by measuring the time to fill a one-gallon container. This time was them multiplied by the well purge volume as calculated in step 2) above. The time to purge three volumes was rounded up by approximately 5 minutes.

5) The pump was started and time recorded while it discharged. Approximately every three minutes a roughly 200 ml sample was collected in a glass container from the discharge pump hose and pH, EC and Temperature were measured with a multimeter. All wells stabilized with regards to pH EC, and Temperature.

6) Prelabled sample bottles, were introduced into the discharge stream of the pump after pumping 3-well volumes and stabilized pH, EC and Temperature. These were sealed and placed in an ice chest on ice for shipment to the lab.

7) The pump was shut off and all equipment was removed, the well cap was rinsed with dilute chlorine solution and replaced and the well cover replaced on the well.

8) After measurement, the measuring tape was rolled onto the reel while it was wiped.

Appendix B Third Tri-Annual 2018 Analytical Results and Field Logs

BVWD District Groundwater Monitoring Field Data Sheet

Date: 10-10-18

Tech. Name: Murphy

Well No: 1

Reference Point: 75 yds below Grassy Road

Total Well Depth (TWD): 27.29 ft.

Depth to Water (WD): 13.11 ft.

Casing Diameter: 2 in.

Water Column Height (TWD – WD): 14.18 ft.

Purge/Sampling Method: Pump / Grab

Well Diameter (In.)	Conversion Factor (CV) gal/ft	Rounded Up
2"	**0.163**	**0.17**

14.18	x **0.17**	= 2.41		2.5	x **3**	= 7.5 **gals**	
Water column	Gal per linear Ft.	1 purge volume		Purge vol, rounded up to nearest .5	# of casing volumes	Total Purge Volume	

Time	Volume Purged (gal)	pH (SU)	EC (µS/cm)	Temp (°C)	Turbidity	Color	Odor	Pumped Dry
0834	**0**	6.88	284	5.2°c	clear	clear	none	N
0836	2.5	7.97	3.15*	5.2°c	clear	clear	none	N
0842	2.5	6.82	244	5.3°c	clear	clear	none	N
0844	2.5	6.74	198.3	5.1°c	clear	clear	none	N
PURGING DATA: (For **0** gallons purge just enough water to record pH, EC, and temperature) * meter suspect?					Clear, trace, light, moderate, heavy	Clear, cloudy, yellow, brown	None, faint, moderate, strong	Yes/No

Notes:

BVWD District Groundwater Monitoring Field Data Sheet

Date: 10-10-18

Tech. Name: R. murphy

Well No: 2

Reference Point: Northmost Orvis Meadow

Total Well Depth (TWD): 17.90 ft.

Depth to Water (WD): 10.57 ft.

Casing Diameter: 2 in.

Water Column Height (TWD – WD): 7.33 ft.

Purge/Sampling Method: Pump / Grab

Well Diameter (In.)	Conversion Factor (CV) gal/ft	Rounded Up
2"	**0.163**	**0.17**

7.33	x	0.17	= 1.24	1.5	x	3	= 4.5 gals
Water column		Gal per linear Ft.	1 purge volume	Purge vol, rounded up to nearest .5		# of casing volumes	Total Purge Volume

Time	Volume Purged (gal)	pH (SU)	EC (µS/cm)	Temp (°C)	Turbidity	Color	Odor	Pumped Dry
0742	**0**							

PURGING DATA: (For **0** gallons purge just enough water to record pH, EC, and temperature) pumped 1 gal. And pump ran dry, dry well

Clear, trace, light, moderate, heavy

Clear, cloudy, yellow, brown

None, faint, moderate, strong

Yes/No

Notes:

BVWD District Groundwater Monitoring Field Data Sheet

Date: 10-10-18 Tech. Name: Murphy

Well No: 3 Reference Point: Middle Orvis Meadow

Total Well Depth (TWD): 13.56 ft.

Depth to Water (WD): 6.54 ft.

Casing Diameter: 2 in.

Water Column Height (TWD – WD): 7.02 ft.

Casing Volume: _____ gal = Water Column Height x CV

Purge Volume: _____ gal = Casing Volume x 3 (volumes required)

Purge Rate: _____ gal/min

Purge/Sampling Method: Pump / Grab

Well Diameter (In.)	Conversion Factor (CV) gal/ft	Rounded Up
2"	**0.163**	**0.17**

7.02	x **0.17**	= 1.19		1.5	x **3**	= 4.5 **gals**	
Water column	Gal per linear Ft.	1 purge volume		Purge vol, rounded up to nearest .5	# of casing volumes	Total Purge Volume	

Time	Volume Purged (gal)	pH (SU)	EC (µS/cm)	Temp (°C)	Turbidity	Color	Odor	Pumped Dry
0750	**0**	6.50	151.8	6.1°c	Trace	Cloudy	none	N
0754	1.5	6.23	88.7	6.9°c	Trace	cloudy	none	N
0756	1.5	6.18	81.2	7.3°c	clear	clear	none	N
0758	1.5	6.09	81.4	7.2°c	clear	clear	none	N
PURGING DATA: (For **0** gallons purge just enough water to record pH, EC, and temperature)					Clear, trace, light, moderate, heavy	Clear, cloudy, yellow, brown	None, faint, moderate, strong	Yes/No

Notes: _____

BVWD District Groundwater Monitoring Field Data Sheet

Date: 10-10-18

Tech. Name: R. Murphy

Well No: 4

Reference Point: Orvis Meadow Below EH

Total Well Depth (TWD): 17.10 ft.

Depth to Water (WD): 4.41 ft.

Casing Diameter: 2 in.

Water Column Height (TWD – WD): 12.69 ft.

Casing Volume: _____ gal = Water Column Height x CV

Purge Volume: _____ gal = Casing Volume x 3 (volumes required)

Purge Rate: _____ gal/min

Purge/Sampling Method: Pump / Grab

Well Diameter (In.)	Conversion Factor (CV) gal/ft	Rounded Up
2"	**0.163**	**0.17**

12.69	x **0.17**	= 2.15	2.5	x **3**	= 7.5 **gals**
Water column	Gal per linear Ft.	1 purge volume	Purge vol, rounded up to nearest .5	# of casing volumes	Total Purge Volume

Time	Volume Purged (gal)	pH (SU)	EC (µS/cm)	Temp (°C)	Turbidity	Color	Odor	Pumped Dry
0722	**0**	7.30	242	8°c	light	Cloudy	none	NO
0724	2.5	6.93	210	7.4°c	clear	clear	none	NO
0728	2.5	6.85	208	7.3°c	clear	clear	none	NO
0730	2.5	6.80	205	6.9°c	clear	clear	none	NO
PURGING DATA: (For **0** gallons purge just enough water to record pH, EC, and temperature)					Clear, trace, light, moderate, heavy	Clear, cloudy, yellow, brown	None, faint, moderate, strong	Yes/No

Notes: _____

BVWD District Groundwater Monitoring Field Data Sheet

Date: 10-10-18

Tech. Name: Murphy

Well No: 5

Reference Point: FS land below Green Machine

Total Well Depth (TWD): 20.19 ft.

Depth to Water (WD): 13.96 ft.

Casing Diameter: 2 in.

Water Column Height (TWD – WD): 6.23 ft.

Casing Volume: _____ gal = Water Column Height x CV

Purge Volume: _____ gal = Casing Volume x 3 (volumes required)

Purge Rate: _____ gal/min

Purge/Sampling Method: Pump / Grab

Well Diameter (In.)	Conversion Factor (CV) gal/ft	Rounded Up
2"	**0.163**	**0.17**

6.23	x **0.17**	= 1.05	1.5	x **3**	= 4.5 **gals**
Water column	Gal per linear Ft.	1 purge volume	Purge vol, rounded up to nearest .5	# of casing volumes	Total Purge Volume

Time	Volume Purged (gal)	pH (SU)	EC (µS/cm)	Temp (°C)	Turbidity	Color	Odor	Pumped Dry
0904	**0**							
PURGING DATA: (For **0** gallons purge just enough water to record pH, EC, and temperature) pumped 1 GAL and well went dry					Clear, trace, light, moderate, heavy	Clear, cloudy, yellow, brown	None, faint, moderate, strong	Yes/No

Notes: _____

BVWD District Groundwater Monitoring Field Data Sheet

Date: 10-10-18

Tech. Name: Murphy

Well No: 6

Reference Point: Below South dam of PR

Total Well Depth (TWD): 22.59 ft.

Depth to Water (WD): 7.43 ft.

Casing Diameter: 2 in.

Water Column Height (TWD – WD): 15.16 ft.

Casing Volume: _____ gal = Water Column Height x CV

Purge Volume: _____ gal = Casing Volume x 3 (volumes required)

Purge Rate: _____ gal/min

Purge/Sampling Method: Pump / Grab

Well Diameter (In.)	Conversion Factor (CV) gal/ft	Rounded Up
2"	**0.163**	**0.17**

15.16	x	0.17	= 2.57	3.0	x	3	= 9 gals
Water column		Gal per linear Ft.	1 purge volume	Purge vol, rounded up to nearest .5		# of casing volumes	Total Purge Volume

Time	Volume Purged (gal)	pH (SU)	EC (µS/cm)	TDS (mg/L)	Temp (°C)	Turbidity	Color	Odor	Pumped Dry
0812	**0**	6.97	554		5.8°c	clear	Clear	none	N
0815	3	7.50	561		6.1°c	clear	Clear	none	N
0817	3	6.93	559		5.9°c	clear	Clear	none	N
0820	3	7.02	555		5.9°c	Clear	Clear	none	N
PURGING DATA: (For **0** gallons purge just enough water to record pH, EC, and temperature)						Clear, trace, light, moderate, heavy	Clear, cloudy, yellow, brown	None, faint, moderate, strong	Yes/No

Notes: _____

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Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 •Phone: (916) 686-5190 • Fax: (916) 686-5192

ELAP Certificates 1551, 2728, and 2922

19 October 2018

Bear Valley Water District
Attn: Guy West
P O Box 5027
Bear Valley, CA 95223
RE: Water Quality
Work Order: 18J1227

Enclosed are the results of analyses for samples received by the laboratory on 10/10/18 22:06. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jeanette Poplin

Jeanette L. Poplin For Karen L. Lantz
Project Manager

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Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 •Phone: (916) 686-5190 • Fax: (916) 686-5192

Bear Valley Water District	Project Manager: Guy West	
P O Box 5027	Project: Water Quality	Reported:
Bear Valley, CA 95223	Project Number: 3rd MW1	10/19/18 16:11

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Well #3	18J1227-01	Water	10/10/18 07:58	10/10/18 22:06
Well #4	18J1227-02	Water	10/10/18 07:30	10/10/18 22:06
Well #1	18J1227-03	Water	10/10/18 08:44	10/10/18 22:06
Well #6	18J1227-04	Water	10/10/18 08:20	10/10/18 22:06

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Bear Valley Water District	Project Manager: Guy West	
P O Box 5027	Project: Water Quality	Reported:
Bear Valley, CA 95223	Project Number: 3rd MW1	10/19/18 16:11

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	Method	Note
Well #3 (18J1227-01)		**Sample Type: Water**				**Sampled: 10/10/18 07:58**		
Metals by EPA 200 Series Methods								
Boron	ND mg/L	0.20	1	AJ83808	10/16/18 10:40	10/18/18 13:24	EPA 200.7	
Iron	**0.96 mg/L**	**0.10**	1	AJ83808	10/16/18 10:40	10/18/18 13:24	EPA 200.7	
Manganese	**0.021 mg/L**	**0.020**	1	AJ83808	10/16/18 10:40	10/18/18 13:24	EPA 200.7	
Sodium	**6.2 mg/L**	**1.0**	1	AJ83808	10/16/18 10:40	10/18/18 13:24	EPA 200.7	
Conventional Chemistry Parameters by APHA/EPA Methods								
Ammonia as N	ND mg/L	0.20	1	AJ83756	10/15/18 11:00	10/15/18 16:30	SM4500NH3C	
Total Dissolved Solids	**73 mg/L**	**10**	1	AJ83883	10/17/18 12:50	10/19/18 06:45	SM2540C	
Total Kjeldahl Nitrogen	ND mg/L	1.0	1	AJ83859	10/18/18 07:01	10/19/18 11:53	SM4500-Norg B	
Anions by EPA Method 300.0								
Chloride	**4.5 mg/L**	**0.50**	1	AJ83645	10/10/18 23:16	10/10/18 23:16	EPA 300.0	
Nitrate as N	ND mg/L	0.20	1	AJ83625	10/10/18 18:04	10/10/18 18:04	EPA 300.0	
Microbiological Parameters by APHA Standard Methods								
Total Coliforms	ND MPN/100mL	1.8	1	AJ83725	10/10/18 15:30	10/12/18 13:35	SM9221B,C	
Well #4 (18J1227-02)		**Sample Type: Water**				**Sampled: 10/10/18 07:30**		
Metals by EPA 200 Series Methods								
Boron	ND mg/L	0.20	1	AJ83808	10/16/18 10:40	10/18/18 13:29	EPA 200.7	
Iron	**1.4 mg/L**	**0.10**	1	AJ83808	10/16/18 10:40	10/18/18 13:29	EPA 200.7	
Manganese	**0.086 mg/L**	**0.020**	1	AJ83808	10/16/18 10:40	10/18/18 13:29	EPA 200.7	
Sodium	**8.2 mg/L**	**1.0**	1	AJ83808	10/16/18 10:40	10/18/18 13:29	EPA 200.7	

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Bear Valley Water District	Project Manager: Guy West	
P O Box 5027	Project: Water Quality	Reported:
Bear Valley, CA 95223	Project Number: 3rd MW1	10/19/18 16:11

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	Method	Note
Well #4 (18J1227-02)		**Sample Type: Water**				**Sampled: 10/10/18 07:30**		
Conventional Chemistry Parameters by APHA/EPA Methods								
Ammonia as N	ND mg/L	0.20	1	AJ83756	10/15/18 11:00	10/15/18 16:30	SM4500NH3C	
Total Dissolved Solids	**150 mg/L**	**10**	1	AJ83883	10/17/18 12:50	10/19/18 06:45	SM2540C	
Total Kjeldahl Nitrogen	ND mg/L	1.0	1	AJ83859	10/18/18 07:01	10/19/18 11:53	SM4500-Norg B	
Anions by EPA Method 300.0								
Chloride	**7.0 mg/L**	**0.50**	1	AJ83645	10/10/18 23:32	10/10/18 23:32	EPA 300.0	
Nitrate as N	**3.0 mg/L**	**1.0**	5	AJ83740	10/11/18 10:04	10/11/18 10:04	EPA 300.0	
Microbiological Parameters by APHA Standard Methods								
Total Coliforms	ND MPN/100mL	1.8	1	AJ83725	10/10/18 14:45	10/12/18 13:40	SM9221B,C	
Well #1 (18J1227-03)		**Sample Type: Water**				**Sampled: 10/10/18 08:44**		
Metals by EPA 200 Series Methods								
Boron	ND mg/L	0.20	1	AJ83808	10/16/18 10:40	10/18/18 13:32	EPA 200.7	
Iron	**14 mg/L**	**0.10**	1	AJ83808	10/16/18 10:40	10/18/18 13:32	EPA 200.7	
Manganese	**1.4 mg/L**	**0.020**	1	AJ83808	10/16/18 10:40	10/18/18 13:32	EPA 200.7	
Sodium	**9.3 mg/L**	**1.0**	1	AJ83808	10/16/18 10:40	10/18/18 13:32	EPA 200.7	
Conventional Chemistry Parameters by APHA/EPA Methods								
Ammonia as N	ND mg/L	0.20	1	AJ83756	10/15/18 11:00	10/15/18 16:30	SM4500NH3C	
Total Dissolved Solids	**160 mg/L**	**10**	1	AJ83883	10/17/18 12:50	10/19/18 06:45	SM2540C	
Total Kjeldahl Nitrogen	ND mg/L	1.0	1	AJ83859	10/18/18 07:01	10/19/18 11:53	SM4500-Norg B	

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Bay Area: 262 Rickenbacker Circle, Livermore, CA 94551 •Phone: (925) 828-6226 • Fax: (925) 828-6309
Central Valley: 9090 Union Park Way, Suite 113, Elk Grove, CA 95624 •Phone: (916) 686-5190 • Fax: (916) 686-5192

Bear Valley Water District	Project Manager: Guy West	
P O Box 5027	Project: Water Quality	Reported:
Bear Valley, CA 95223	Project Number: 3rd MW1	10/19/18 16:11

	Result	Reporting Limit	Dilution	Batch	Prepared	Analyzed	Method	Note
Well #1 (18J1227-03)		**Sample Type: Water**				**Sampled: 10/10/18 08:44**		
Anions by EPA Method 300.0								
Chloride	**1.7 mg/L**	**0.50**	1	AJ83645	10/10/18 21:58	10/10/18 21:58	EPA 300.0	
Nitrate as N	**2.8 mg/L**	**2.0**	10	AJ83740	10/11/18 09:18	10/11/18 09:18	EPA 300.0	
Microbiological Parameters by APHA Standard Methods								
Total Coliforms	ND MPN/100mL	1.8	1	AJ83725	10/10/18 16:40	10/14/18 13:40	SM9221B,C	
Well #6 (18J1227-04)		**Sample Type: Water**				**Sampled: 10/10/18 08:20**		
Metals by EPA 200 Series Methods								
Boron	ND mg/L	0.20	1	AJ83808	10/16/18 10:40	10/18/18 13:36	EPA 200.7	
Iron	**7.3 mg/L**	**0.10**	1	AJ83808	10/16/18 10:40	10/18/18 13:36	EPA 200.7	
Manganese	**3.2 mg/L**	**0.020**	1	AJ83808	10/16/18 10:40	10/18/18 13:36	EPA 200.7	
Sodium	**16 mg/L**	**1.0**	1	AJ83808	10/16/18 10:40	10/18/18 13:36	EPA 200.7	
Conventional Chemistry Parameters by APHA/EPA Methods								
Ammonia as N	ND mg/L	0.20	1	AJ83756	10/15/18 11:00	10/15/18 16:30	SM4500NH3C	
Total Dissolved Solids	**310 mg/L**	**10**	1	AJ83883	10/17/18 12:50	10/19/18 06:45	SM2540C	
Total Kjeldahl Nitrogen	ND mg/L	1.0	1	AJ83859	10/18/18 07:01	10/19/18 11:53	SM4500-Norg B	
Anions by EPA Method 300.0								
Chloride	**7.2 mg/L**	**0.50**	1	AJ83645	10/10/18 22:29	10/10/18 22:29	EPA 300.0	
Nitrate as N	**0.98 mg/L**	**0.20**	1	AJ83625	10/10/18 17:49	10/10/18 17:49	EPA 300.0	

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Bear Valley Water District	Project Manager: Guy West	
P O Box 5027	Project: Water Quality	Reported:
Bear Valley, CA 95223	Project Number: 3rd MW1	10/19/18 16:11

	Result		Reporting Limit	Dilution	Batch	Prepared	Analyzed	Method	Note
Well #6 (18J1227-04)			**Sample Type: Water**				**Sampled: 10/10/18 08:20**		
Microbiological Parameters by APHA Standard Methods									
Total Coliforms	ND	MPN/100mL	1.8	1	AJ83725	10/10/18 16:20	10/12/18 14:00	SM9221B,C	

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Bear Valley Water District	Project Manager: Guy West	
P O Box 5027	Project: Water Quality	Reported:
Bear Valley, CA 95223	Project Number: 3rd MW1	10/19/18 16:11

Notes and Definitions

E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
ND	Analyte NOT DETECTED at or above the reporting limit
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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Ukiah 1551 / Dublin 2728 / Elk Grove 2922

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Central Valley Laboratory
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916-686-5190 F) 916-686-5192

Chain of Custody - Work Order

Reports and Invoices delivered by email in PDF format

Lab No 18J1227 Pg 1 of 2

Report to	Invoice to (if different)	Project Information
Company: Bear Valley Water District	Contact:	Project ID: 3rd MW I
Attn:	Email address:	Project No:
Address: PO Box 5027 Bear Valley, CA 95223	Address:	PO Number:
Phone/Fax: 209-753-2112	Phone/Fax:	
Email Address:		Internal Lab Use: 569

Signature below authorizes work under terms stated on reverse side.

Field Sampler - Printed Name & Signature: Robin Murphy

Sample Identification	Sampling Date	Sampling Time	Container: 40ml Vial	Container: Poly	Container: Glass	Container: Sleeve	Container: Other	Preservative: HCl	Preservative: HNO3	Preservative: H2S04	Preservative: Na2S2O3	Preservative: None	Matrix: Water WW	Matrix: Soil	Matrix: Other	Total Number of Containers per Sample ID	CV - TC 15 WW	CV - N03-N 250 ml	NH3-N, TKN	300.0 - B, Fe, Mn, Na Chloride 2 cv 500 ml	TDS 2 cv 250 ml
~~Well #1~~				x					x	x	x	x	x			6	x	x	x	x	x
~~Well #2~~ dry well	~~10-10-18~~			x					x	x	x	x	x			6	x	x	x	x	x
Well #3	10-10-18	0758		x					x	x	x	x	x			6	x	x	x	x	x
Well #4	10-10-18	0730		x					x	x	x	x	x			6	x	x	x	x	x
~~Well #5~~				x					x	x	x	x	x			6	x	x	x	x	x
~~Well #6~~				x					x	x	x	x	x			6	x	x	x	x	x

TAT	Temp upon Receipt °C
Standard 10 days	Ukiah temp: 2.4°C
Standard 5 days X 48 hours Other: ____days Lab preapproval required	Dublin temp:
	Elk Grove temp: 1.1

Sample Notes or CDPH Source Numbers:

SAMPLE 3 TIMES YEARLY
JUNE, AUG, SEPT

Relinquished by	Received by	Date	Time
Robin Murphy		10-10-18	1300
		10-10-18	1715
		10/10/18	1552
	P2V	10-10-18	19:36
P2V	P2V	10-10-18	22:06

CDPH Write On EDT Transmission? Yes No

State System Number: _____

If "Y" please enter the Source Number(s) in the column above

Mail Hardcopy to DDW- ? Yes No

Hardcopy to DDW attn:

Travel and Site Time: | Mileage: | Misc. Supplies:

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Chain of Custody - Work Order

Reports and Invoices delivered by email in PDF format

Lab No 18J1227 Pg 2 of 2

Report to	Invoice to (if different)	Project Information
Company: Bear Valley Water District	Contact:	Project ID: 3rd MW I
Attn:	Email address:	Project No:
Address: PO Box 5027 Bear Valley, CA 95223	Address:	PO Number:
Phone/Fax: 209-753-2112	Phone/Fax:	
Email Address:		Internal Lab Use: 569

Signature below authorizes work under terms stated on reverse side.

Field Sampler - Printed Name & Signature: Robin Murphy

Sample Identification	Sampling Date	Sampling Time	Container: 40ml Vial	Container: Poly	Container: Glass	Container: Sleeve	Container: Other	Preservative: HCl	Preservative: HNO3	Preservative: H2SO4	Preservative: Na2S2O3	Preservative: None	Matrix: Water WW	Matrix: Soil	Matrix: Other	Total Number of Containers per Sample ID	Analysis Request: CV - TC 15 WW	Analysis Request: CV - N03-N	Analysis Request: NH3-N, TKN	Analysis Request: 200.7 - B, Fe, Mn, Na (Chloride CV 500 ml)	Analysis Request: TDS CV 250 ml
Well #1	10-11-18	0844		x					x	x	x	x	x			6	x	x	x	x	x	x
~~Well #2~~				x					x	x	x	x	x			6	x	x	x	x	x	x
~~Well #3~~				x					x	x	x	x	x			6	x	x	x	x	x	x
~~Well #4~~				x					x	x	x	x	x			6	x	x	x	x	x	x
~~Well #5~~ dry well	10-11-18			x					x	x	x	x	x			6	x	x	x	x	x	x
Well #6	10-11-18	0820		x					x	x	x	x	x			6	x	x	x	x	x	x
~~Sample ID~~ date is 10.10.18, See attached email. 10-10-18 (R)																						

TAT	Temp upon Receipt °C
Standard 10 days	Ukiah temp: 2.4°C
Standard 5 days X 48 hours	Dublin temp:
Other: ____days (Lab preapproval required)	Elk Grove temp: 4.1C

Sample Notes or CDPH Source Numbers:

SAMPLE 3 TIMES YEARLY
JUNE, AUG, SEPT

Relinquished by	Received by	Date	Time
Robin Murphy		10-10-18	1330
		10-10-18	1411
		10/10/18	1550
		10-10-18	19:36
		10-10-18	22:06

CDPH Write On EDT Transmission? Yes No

State System Number:

If "Y" please enter the Source Number(s) in the column above

Mail Hardcopy to DDW- ? Yes No

Hardcopy to DDW attn:

Travel and Site Time: Mileage: Misc. Supplies:

Leslie M. Quinn

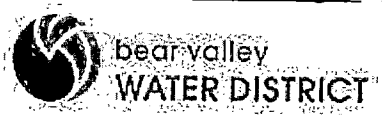
From: Karen Lantz <klantz@alpha-labs.com>
Sent: Thursday, October 11, 2018 10:25 AM
To: 'Leslie M. Quinn'
Subject: FW: Sample Date
Attachments: image003.jpg

For Bear Valley, the sample date is 10/10/18, not 10/11/18 as recorded on the COC.
Karen

From: Jeff Gouveia [mailto:Jeff.Gouveia@bvwd.ca.gov]
Sent: Thursday, October 11, 2018 10:03 AM
To: Karen Lantz; Guy West
Subject: RE: Sample Date

Sorry, should be sample date 10/10/18.

Jeff Gouveia | General Manager |
Bear Valley Water District
441 Creekside Drive I PO Box 5027, Bear Valley, CA 95223 |
O: 209.753.2112 | C: 209.743.0836 | F: 209.753.6267
Jeff.Gouveia@bvwd.ca.gov I www.bvwd.ca.gov I



From: Karen Lantz [mailto:klantz@alpha-labs.com]
Sent: Thursday, October 11, 2018 9:59 AM
To: Jeff Gouveia; Guy West
Subject: Sample Date

Good Morning,
Can you review the attached COC and verify that the sample date is 10/10/18? It is recorded as 10/11/18 on the COC, but was received on 10/10/18.

Thank you,

Karen Lantz
Alpha Analytical Laboratories, Inc.
9090 Union Park Way, Suite 113, Elk Grove, CA 95624
Project Management

Appendix C Historical Groundwater Elevations and Quality

Bear Valley Water District
Historic Groundwater Quality

Well	Date	Depth To GW (ft)	GW Elev. (ft, NAVD88)	Field pH	Field EC (µS/cm)	Temp. (C)	NO3-N (mg/L)	TKN (mg/L)	Ammonia as N	TDS (mg/L)	Total Coliform (MPN/100ml)	B (mg/L)	Fe (mg/L)	Mn (mg/L)	Na (mg/L)	Cl (mg/L)	ORP (mV)	Dissolved Oxygen (mg/L)	Lab SC (µS/cm)	Ca (mg/L)	Mg (mg/L)
MW-1	9/1/2004	10.29	7103.79	6.7	221	4.8	<0.050	<1.0		166	28	NR[3]	**0.940**	**0.370**	NR[3]	NR[3]					
MW-1	10/13/2004	12.73	7101.35	6.9	180	6.2	<0.1	1	<1	150	<2	0.05	<0.02	**0.350**	7.0	3.4					
MW-1	8/11/2005	9.32	7104.76	6.5	150	6.4	<0.1	2	<1	200	<2	<0.03	0.210	**0.280**	6.0	1.2	71	5.5	160	19.0	5.2
MW-1	9/15/2005	9.54	7104.54	7.0	150	6.4	<0.1	<1	<1	150	<2	<0.03	**0.730**	**0.300**	6.0	3.6	56	7.9	160	20.0	5.3
MW-1	10/13/2005	9.50	7104.58	6.6	1482	7.1	<0.1	<1	<1	120	2	0.03	0.150	**0.260**	6.0	2.2	138	7.5	170	18.0	4.8
MW-1	6/29/2006	9.60	7104.48	6.9	125	5.1	<0.1	<1	<1	110	<2	<0.03	0.060	**0.140**	5.0	1.6	103	1.7	140	14.0	3.9
MW-1	8/2/2006	8.25	7105.83	7.7	156	6.9	<0.1	<1	<1	150	**21**	<0.03	<0.02	**0.280**	7.0	1.4	65	4.3	170	20.0	5.0
MW-1	10/10/2006	8.08	7106.00	6.8	171	5.9	<0.1	<1	<1	160	<2	<0.03	0.130	**0.360**	7.0	1.5	70	2.7	180	22.0	5.7
MW-1	7/12/2007	10.10	7103.98	7.0	173	7.0	<0.1	<1	<1	220	2	<0.03	0.130	**0.370**	6.0	1.2	110	6.7	180	23.0	5.8
MW-1	8/29/2007	9.00	7105.08	7.1	180	7.7	<0.1	<1	<1	170	14	0.037	**0.340**	**0.430**	6.0	1.5	-2	4.9	200	25.0	5.8
MW-1	9/26/2007	12.30	7101.78	7.2	189	7.4	<0.1	<1	<1	170	<2	<0.03	0.140	**0.380**	6.7	1.0	-121	4.7	200	23.0	6.0
MW-1	7/8/2008	10.25	7103.83	7.2	168	7.4	<0.1	<1	<1	170	**4**	<0.03	0.060	**0.270**	6.0	1.1	141	1.9	180	21.0	6.0
MW-1	9/18/2008	9.70	7104.38	7.3	189	6.9	<0.1	<1	<1	180	**230**	<0.03	0.060	**0.330**	7.0	<1.0	156	7.4	200	22.0	5.1
MW-1	1/16/2008	12.30	7101.78	7.6	180	6.4	<0.1	<0.1	<1	150	**11**	<0.03	0.180	**0.360**	11.0	1.2	78	7.1	190	26.0	7.7
MW-1	7/7/2009	8.95	7105.13	7.2	168	6.8	<0.1	<1	<1	220	2	<0.03	0.140	**0.260**	7.0	0.8	469	6.2	180	23.0	5.8
MW-1	9/30/2009	9.00	7105.08	6.2	194	6.8	<0.1	<1	<1	170	**8**	<0.03	0.120	**0.420**	7.0	0.6	52	1.9	190	25.0	5.5
MW-1	10/26/2009	10.30	7103.78	2.7	142	6.3	0.3	1	<1	160	**80**	<0.03	0.110	**0.280**	9.0	1.1	281	1.0	190	23.0	6.2
MW-1	7/13/2010	8.80	7105.28	6.4	150	6.0	<0.1	<1	<1	140	<2	<0.03	0.040	**0.220**	6.0	1.9	402	1.7	150	19.0	4.7
MW-1	8/24/2010	9.03	7105.05	7.0	185	6.1	<0.1	<1	<1	170	2	<0.03	<0.02	**0.300**	7.0	0.9	43	0.9	190	20.0	5.4
MW-1	11/4/2010	8.80	7105.28	5.9	173	6.3	<0.1	6	<1	140	**17**	<0.03	<0.02	**0.310**	6.0	2.2	132	2.0	170	18.0	4.3
MW-1	7/21/2011	8.10	7105.98	5.6	148	5.7	<0.1	<1	<1	130	<2	<0.03	0.017	**0.200**	4.6	1.6	101	1.1	150	14.7	4.1
MW-1	9/8/2011	9.54	7104.54	7.0	177	6.2	<0.1	2	<1	140	<2	<0.03	0.040	**0.272**	5.7	1.1	38	1.3	180	17.2	5.1
MW-1	10/20/2011	9.44	7104.64	6.6	167	5.7	<0.1	2	<1	140	**4.5**	<0.03	0.060	**0.280**	5.4	1.6	61	1.5	170	17.3	4.3
MW-1	6/26/2012	9.00	7105.08	6.7	93	5.4	0.2	<1	<1	110	<1.8	<0.03	<0.02	**0.190**	5.6	1.7	63	2.1	93	15.9	4.1
MW-1	7/31/2012	10.30	7103.78	7.0	197	8.5	<0.1	1	<1	150	2	<0.03	0.081	**0.263**	6.6	0.7	103	0.1	200	23.9	5.8
MW-1	10/9/2012	12.40	7101.68	6.5	184	5.8	<0.2	2	<1	140	<1.8	<0.03	0.105	**0.322**	6.5	1.6	87	1.5	180	20.4	5.0
MW-1	5/30/2013	11.00	7103.08	6.4	153	6.1	<0.2	<1	<1	120	<1.8	<0.03	<0.02	**0.143**	5.3	1.7	198	--	150	16.7	4.5
MW-1	8/21/2013	12.39	7101.69	6.6	177	8.1	<0.1	<1	<1	150	<1.8	<0.03	0.080	**0.280**	5.3	1.5	276	2.3	180	18.6	4.6
MW-1	10/15/2013	12.95	7101.13	6.4	193	7.1	<0.2	<1	<1	150	<1.8	<0.03	0.093	**0.300**	6.8	1.5	514	1.3	190	25.7	5.9
MW-1	6/12/2014	11.04	7103.04	6.2	130	6.4	<0.2	<1	<1	120	<1.8	<0.03	<0.02	**0.052**	5.0	2.6	266	2.9	130	14.4	4.1
MW-1	8/12/2014	10.67	7103.41	7.4	157	6.7	<0.2	<1	<1	140	<1.8	<0.03	<0.02	**0.206**	5.6	2.4	258	2.3	160	18.9	4.6
MW-1	10/14/2014	12.39	7101.69	7.2	189	6.7	<0.2	<1	<1	170	<1.8	<0.03	<0.02	**0.299**	6.2	1.0	264	0.3	190	21.8	5.6
MW-1	6/17/2015	10.72	7103.36	7.2	138	6.8	<0.2	<1	<1	110	<1.8	<0.03	<0.02	0.046	4.6	5.2	306	1.8	140	12.5	3.7
MW-1	9/9/2015	10.19	7103.89	6.6	165	6.7	<0.2	<1	<1	150	<1.8	0.034	<0.03	**0.203**	5.9	2.2	241	2.7	170	19.4	5.0
MW-1	11/12/2015	11.00	7103.08	6.5	161	8.3	<0.2	<1	<1	160	**17**	<0.03	<0.03	**0.205**	5.1	3.7	270	--	160	17.3	4.6
MW-1	7/7/2016	8.89	7105.19	6.1	154	8.6	<0.2	<1	<1	110	<1.8	<0.03	<0.03	**0.108**	5.4	2.0	--	--	150	17.7	4.6
MW-1	9/8/2016	11.11	7102.97	6.4	168	6.9	<0.1	0.62	<0.1	170	<1.8	<0.03	<0.03	**0.196**	5.5	1.9	--	--	--	19.1	4.8
MW-1	10/20/2016	9.48	7104.60	6.4	172	6.5	<0.1	0.31	0.19	140	**230**	<0.03	0.043	**0.236**	5.8	2.1	--	--	--	20.5	5.1
MW-1	7/13/2017	10.09	7103.99	7.6	88	7.3	<0.4	<1	<1	92	**5400**	<0.03	<0.03	**0.016**	4.5	1.9	--	--	88	8.9	2.7
MW-1	8/24/2017	9.85	7104.23	6.1	154	6.5	<0.4	<1	<1	130	**490**	<0.03	<0.03	**0.128**	5.5	1.3	--	--	150	15.0	4.6
MW-1	9/28/2017	10.45	7103.63	6.1	152	5.8	<0.4	<1	<1	130	1.8	<0.03	<0.03	**0.148**	5.7	1.6	--	--	150	16.5	4.3
MW-1	6/29/2018	8.70	7105.38	6.7	233	5.6	<0.2	<1	<0.2	161	<1.8						--	--			
MW-1	8/23/2018	10.81	7103.27	6.8	185	5.5	<0.2	<1	<0.2	140	<1.8										
MW-1	10/10/2018	13.11	7100.97	6.7	198	5.1	2.8	<1	<0.2	160	<1.8	<0.2	**14**	**1.400**	9.3	1.7					
MW-2	10/30/2002	12.25	7055.28	6.7			<0.050	NR[1]	<0.4	186	**>2400**	<0.10[T]	**79**[T]	**1.13**[T]	19.8[T]	58.0					

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Well	Date	Depth To GW (ft)	GW Elev. (ft, NAVD88)	Field pH	Field EC (µS/cm)	Temp. (C)	NO3-N (mg/L)	TKN (mg/L)	Ammonia as N	TDS (mg/L)	Total Coliform (MPN/100ml)	B (mg/L)	Fe (mg/L)	Mn (mg/L)	Na (mg/L)	Cl (mg/L)	ORP (mV)	Dissolved Oxygen (mg/L)	Lab SC (µS/cm)	Ca (mg/L)	Mg (mg/L)
MW-2	7/29/2003			7.1	112	9.2	<0.1	1	<0.2	80	**6**	NR[3]	NR[3]	NR[3]	NR[3]	NR[3]					
MW-2	11/13/2003	10.95	7056.58	7.7			<0.050*	NR[1]	<0.4		2	<0.10[T]	**37[T]**	**0.82[T]**	5.7[T]	<1.0					
MW-2	6/22/2004	3.76	7063.77	6.7	70	4.8	<0.050	2	<0.4	82	2	NR[3]	**0.920**	<0.02	NR[3]	NR[3]					
MW-2	9/1/2004	8.86	7058.67	6.9	68	7.2	<0.050	1	<0.4	90	<2	NR[3]	**0.590**	<0.02	NR[3]	NR[3]					
MW-2	10/13/2004	17.80	7049.73	6.5	63	11.4	<0.1	10	<1	96	**4**	0.03	0.020	**0.110**	3.0	2.2					
MW-2	8/11/2005	3.82	7063.71	6.2	50	11.9	<0.1	2	<1	140	<2	<0.03	**0.310**	0.040	2.0	<1	11	1.1	54	5.5	1.8
MW-2	9/15/2005	8.00	7059.53	7.1	51	12.3	0.1	2	0.5	130	<2	<0.03	**0.680**	0.010	3.0	<1	99	NS	56	6.1	2.1
MW-2	10/13/2005	8.35	7059.18	6.8	59	10.0	<0.1	<1	<1	110	**30**	<0.03	0.280	0.010	3.0	<1	1	9.4	67	6.4	2.2
MW-2	6/29/2006	0.50	7067.03	7.9	45	12.5	<0.1	<1	<1	93	<2	<0.03	0.100	<0.01	2.0	<1	133	0.6	48	4.6	1.5
MW-2	8/2/2006	7.24	7060.29	7.8	45	13.1	<0.1	<1	<1	100	<2	<0.03	0.070	**0.060**	4.0	<1	37	1.8	53	5.0	1.7
MW-2	10/10/2006	7.30	7060.23	6.8	66	7.9	<0.1	<1	<1	130	<2	<0.03	**0.440**	0.020	4.0	2.3	160	7.6	75	8.0	2.8
MW-2	7/12/2007	8.10	7059.43	6.8	41	15.9	<0.1	0.7	<1	43	2	<0.03	**1.200**	0.049	3.0	1.1	229	8.5	49	5.5	1.7
MW-2	8/29/2007	8.70	7058.83	7.3	67	16.0	0.1	<1	<1	100	<2	<0.03	**0.970**	**0.100**	3.0	1.9	150	6.4	75	7.8	2.2
MW-2	9/26/2007	10.30	7057.23	6.7	54	11.0	0.1	<1	<1	130	2	<0.03	0.023	0.015	3.0	2.0	-121	12.0	65	5.2	1.7
MW-2	7/8/2008	2.90	7064.63	6.6	45	13.8	<0.1	<1	<1	130	**220**	<0.03	**0.450**	0.020	2.0	<1	137	4.1	49	5.0	2.0
MW-2	9/18/2008	7.95	7059.58	6.7	115	13.1	0.2	3	<1	86	<2	<0.03	**0.510**	0.010	7.0	6.8	764	13.1	99	5.2	1.7
MW-2	10/16/2008	8.78	7058.75	7.5	52	18.3	0.2	<0.1	<1	97	2	<0.03	0.220	0.010	3.0	1.6	214	7.6	56	5.7	1.7
MW-2	7/7/2009	6.30	7061.23	6.9	44	9.4	<0.1	<1	<1	330	2	<0.03	**0.910**	0.020	3.0	<0.2	363	8.5	48	6.1	1.8
MW-2	9/30/2009	8.70	7058.83	6.0	59	8.4	<0.1	<1	<1	47	**8**	<0.03	**0.620**	0.020	3.0	0.9	85	0.0	61	6.9	1.6
MW-2	10/26/2009	7.85	7059.68	6.1	47	9.0	0.5	<1	<1	54	**2200**	<0.03	**0.520**	0.040	3.0	1.8	480	4.2	61	6.8	1.9
MW-2	7/13/2010	0.80	7066.73	6.1	43	9.3	<0.1	<1	<1	61	**11**	<0.03	0.200	<0.01	2.0	1.4	134	0.3	43	4.7	1.5
MW-2	8/24/2010	8.34	7059.19	6.3	47	9.8	<0.1	<1	<1	90	**23**	<0.03	<0.02	<0.01	2.0	0.5	136	7.9	47	4.7	1.5
MW-2	11/4/2010	0.70	7066.83	5.8	57	9.5	<0.1	3	<1	49	**500**	<0.03	0.080	0.010	3.0	1.9	201	4.0	57	6.4	1.8
MW-2	7/21/2011	0.40	7067.13	6.2	42	7.2	<0.1	<1	<1	59	**13**	<0.03	0.116	**0.200**	1.8	<0.2	179	0.4	42	4.5	1.4
MW-2	9/8/2011	4.40	7063.13	6.4	56	10.2	<0.1	2	<1	70	2	<0.03	**1.540**	0.014	2.6	0.6	77	1.7	56	5.3	2.1
MW-2	10/20/2011	3.30	7064.23	6.1	67	10.8	<0.1	1	<1	60	**79**	<0.03	0.034	<0.01	2.5	1.0	121	2.1	67	6.5	2.0
MW-2	6/26/2012	2.95	7064.58	6.2	40	9.9	<0.1	2	<1	53	<1.8	<0.03	<0.02	<0.01	2.5	0.3	70	0.7	40	6.0	1.9
MW-2	7/31/2012	4.75	7062.78	6.3	74	9.7	<0.2	<1	<1	67	**23**	<0.03	0.054	<0.01	3.7	0.8	139	0.9	74	8.4	2.7
MW-2	10/9/2012	11.24	7056.29	5.9	100	9.0	<0.2	<1	<1	81	<1.8	<0.03	0.029	**0.220**	8.6	8.7	691	2.6	100	7.0	2.1
MW-2	5/30/2013	1.00	7066.53	6.1	43	8.3	<0.2	<1	<1	53	**4.5**	<0.03	<0.02	<0.01	2.1	0.4	150	--	43	4.3	1.4
MW-2	8/21/2013	7.00	7060.53	5.2	50	11.8	<0.2	<1	<1	160	**4.5**	<0.03	0.197	**0.168**	3.0	0.8	231	2.2	50	5.8	1.8
MW-2	10/15/2013	12.41	7055.12	5.6	56	9.6	<0.2	<1	<1	87	**4**	<0.03	0.044	0.023	3.2	0.7	571	3.1	56	4.9	1.4
MW-2	6/12/2014	1.54	7065.99	5.9	47	7.7	<0.2	<1	<1	65	**4.5**	<0.03	<0.02	<0.01	2.3	0.3	83	4.1	47	4.5	1.2
MW-2	8/12/2014	7.94	7059.59	6.7	54	11.4	<0.2	<1	<1	85	**21**	<0.03	<0.02	0.023	2.6	0.3	155	4.1	54	5.5	1.7
MW-2	10/14/2014	10.28	7057.25	5.9	55	10.1	<0.2	<1	<1	120	<1.8	<0.03	0.101	0.115	3.2	0.7	616	2.6	55	7.1	2.1
MW-2	6/17/2015	1.94	7065.59	7.7	47	9.2	<0.2	<1	<1	45	<1.8	<0.03	<0.02	<0.01	2.4	0.3	78	0.4	47	4.8	1.5
MW-2	9/9/2015	10.31	7057.22	6.9	50	11.6	<0.2	<1	<1	70	<1.8	<0.03	<0.03	0.042	2.8	0.6	201	2.7	50	5.1	1.6
MW-2	11/13/2015	8.81	7058.72	6.1	60	12.1	<0.2	<1	<1	90	**6.8**	<0.03	<0.03	0.023	2.4	0.9	349	--	60	5.9	1.9
MW-2	7/7/2016	2.29	7065.24	5.7	49	11.2	<0.2	<1	<1	54	<1.8	<0.03	<0.03	<0.01	2.3	0.3	--	--	49	5.9	1.5
MW-2	9/8/2016	7.63	7059.90	6.3	70	10.6	<0.1	0.40	<0.1	180	<1.8	<0.03	<0.03	<0.01	2.7	1.3	--	--	--	7.1	2.2

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Well	Date	Depth To GW (ft)	GW Elev. (ft, NAVD88)	Field pH	Field EC (µS/cm)	Temp. (C)	NO3-N (mg/L)	TKN (mg/L)	Ammonia as N	TDS (mg/L)	Total Coliform (MPN/100ml)	B (mg/L)	Fe (mg/L)	Mn (mg/L)	Na (mg/L)	Cl (mg/L)	ORP (mV)	Dissolved Oxygen (mg/L)	Lab SC (µS/cm)	Ca (mg/L)	Mg (mg/L)
MW-2	10/20/2016	2.04	7065.49	5.8	64.5	10.3	0.2	0.35	0.14	54	**170**	<0.03	<0.03	<0.01	3.2	2.2	--	--	--	6.9	2.1
MW-2	7/13/2017	1.83	7065.70	7.2	46	10.7	<0.4	<1	<1	54	<1.8	<0.03	0.077	**0.160**	3.0	0.3	--	--	46	7.1	2.0
MW-2	8/24/2017	6.57	7060.96	6.0	57	12.9	<0.4	<1	<1	55	**1300**	<0.03	<0.03	0.022	2.9	0.6	--	--	57	5.2	1.8
MW-2	9/28/2017	8.45	7059.08	5.8	57	12.6	<0.4	1	<1	67	2	<0.03	<0.03	0.041	2.8	0.7	--	--	57	6.1	1.8
MW-2	6/28/2018	3.60	7063.93	6.5	77	8.9	<0.2	<1	<0.2	54	<1.8						--	--			
MW-2	8/22/2018	8.80	7058.73	5.3	64.7	8.7	<0.2	2.50	<0.2	65	**79**										
MW-2	10/10/2019	10.57	7056.96	IVS																	
MW-3	10/30/2002	6.38	7049.99	6.3			<0.050	NR[1]		256	**>2400**	<0.10[T]	**63**[T]	**0.92**[T]	32[T]	74.0					
MW-3	7/29/2003			6.4	98	6.9	0.3	1		60	**1600**	NR[3]	NR[3]	NR[3]	NR[3]	NR[3]					
MW-3	11/13/2003	6.30	7050.07	6.3			0.06*	NR[1]			**9**	<0.10[T]	**46**[T]	**0.73**[T]	10.7[T]	8.6					
MW-3	6/22/2004	2.45	7053.92	6.1	94	4.2	0.52	2		122	**9**	NR[3]	**0.650**	<0.02	NR[3]	NR[3]					
MW-3	9/1/2004	4.75	7051.62	6.6	100	7.2	0.63	<1.0		124	<2	NR[3]	**0.380**	<0.02	NR[3]	NR[3]					
MW-3	10/13/2004	6.59	7049.78	6.1	85	8.9	0.3	<1	<1	100	<2	0.04	<0.02	<0.01	7.0	6.5					
MW-3	8/11/2005	3.12	7053.25	6.3	70	7.5	0.5	<1	<1	88	2	<0.03	0.040	<0.01	6.0	5.0	59	4.4	75	6.2	1.7
MW-3	9/15/2005	2.97	7053.40	6.1	78	10.8	<0.1	<1	<1	82	**30**	<0.03	0.070	<0.02	6.0	7.7	100	9.1	70	5.9	1.5
MW-3	10/13/2005	3.48	7052.89	6.8	NM	10.1	0.4	2	<1	80	**9**	<0.03	0.030	0.040	7.0	11	84	4.4	92	7.3	2.2
MW-3	6/29/2006	2.02	7054.35	7.6	50	6.3	<0.1	<1	<1	49	2	<0.03	0.030	<0.01	4.0	3	180	2.7	56	4.3	1.2
MW-3	8/2/2006	2.75	7053.62	7.7	88	7.9	0.2	<1	<1	72	<2	<0.03	<0.02	<0.01	6.0	5	70	3.6	68	5.4	1.5
MW-3	10/10/2006	3.15	7053.22	6.4	76	8.7	<0.1	2	<1	82	**13**	<0.03	<0.02	<0.01	6.0	7.4	169	2.6	82	6.6	2.0
MW-3	7/12/2007	3.17	7053.20	6.2	59	10.4	0.2	<1	<1	91	<2	<0.03	0.053	<0.01	8.0	4.3	249	4.2	66	5.9	1.6
MW-3	8/29/2007	3.40	7052.97	6.4	89	13.6	<0.1	<1	<1	71	**800**	<0.03	0.024	<0.01	6.0	11.0	176	4.5	97	7.5	1.8
MW-3	9/26/2007	5.00	7051.37	5.8	89	10.9	0.1	<1	<1	90	**80**	<0.03	<0.02	<0.01	7.0	11.0	-109	7.8	96	7.5	2.1
MW-3	7/8/2008	2.50	7053.87	6.4	47	8.8	0.1	<1	<1	72	2	<0.03	0.210	<0.01	6.0	5.3	218	2.5	66	5.0	2.0
MW-3	9/18/2008	3.85	7052.52	6.0	93	12.8	<0.1	<1	<1	94	<2	<0.03	<0.02	<0.01	7.0	13.0	681	3.9	97	6.8	1.9
MW-3	10/16/2008	5.54	7050.83	7.0	101	11.6	<0.1	0.15	<1	94	2	<0.03	<0.02	<0.01	7.0	16.0	109	5.1	110	10.0	2.7
MW-3	7/7/2009	2.40	7053.97	6.1	77	6.0	0.5	<1	<1	100	**4**	<0.03	0.060	<0.01	6.0	11.0	680	1.4	81	7.1	1.9
MW-3	9/30/2009	3.65	7052.72	5.5	106	12.4	<0.1	<1	<1	100	**4**	<0.03	0.060	<0.01	8.0	12.0	211	1.7	110	9.3	2.0
MW-3	10/26/2009	4.10	7052.27	5.7	61	10.5	0.9	<1	<1	70	**22**	<0.03	0.100	<0.01	6.0	8.6	239	6.1	77	4.9	1.4
MW-3	7/13/2010	2.10	7054.27	6.1	58	3.8	<0.1	<1	<1	60	**8**	<0.03	0.030	<0.01	5.0	3.6	116	1.8	58	3.8	0.6
MW-3	8/24/2010	2.65	7053.72	5.8	79	11.8	<0.1	<1	<1	87	2	<0.03	<0.02	<0.01	7.0	6.1	153	0.8	79	6.3	1.8
MW-3	11/4/2010	2.10	7054.27	5.6	105	9.8	<0.1	3.00	<1	92	**800**	<0.03	0.020	<0.01	8.0	12.0	157	0.7	110	8.5	2.2
MW-3	7/21/2011	0.90	7055.47	6.2	52	3.6	<0.1	<1	<1	56	**34**	<0.03	<0.02	<0.01	3.8	2.4	113	2.3	52	3.9	1.0
MW-3	9/8/2011	2.45	7053.92	6.1	71	9.5	<0.1	2.00	<1	62	2	<0.03	<0.02	<0.01	5.3	3.1	122	0.5	71	5.1	1.6
MW-3	10/20/2011	2.14	7054.23	6.1	76	8.2	<0.1	1.00	<1	68	**130**	<0.03	0.032	<0.01	5.5	3.7	123	0.9	76	5.7	1.5
MW-3	6/26/2012	2.35	7054.02	6.0	48	6.3	<0.1	<1	<1	64	<1.8	<0.03	<0.02	<0.01	6.4	3.8	84	0.4	48	6.1	1.7
MW-3	7/31/2012	2.86	7053.51	6.0	89	12.1	<0.2	<1	<1	69	<1.8	<0.03	**0.330**	0.029	6.1	6.3	157	0.0	89	7.7	2.0
MW-3	10/9/2012	5.98	7050.39	5.7	85	9.4	<0.2	<1	<1	72	<1.8	<0.03	0.067	0.017	6.2	5.3	436	1.2	85	6.5	1.8
MW-3	5/30/2013	2.20	7054.17	5.9	54	7.0	<0.2	<1	<1	60	**6.8**	<0.03	0.039	0.031	4.7	3.4	147	--	54	4.3	1.2
MW-3	8/21/2013	4.90	7051.47	4.2	73	9.3	<0.2	<1	<1	68	<1.8	<0.03	0.042	0.017	5.3	5.0	359	1.6	73	5.2	1.4
MW-3	10/15/2013	6.11	7050.26	5.4	76	9.4	<0.2	<1	<1	79	<1.8	<0.03	<0.02	<0.01	6.1	4.8	588	2.2	76	6.2	1.5
MW-3	6/12/2014	2.33	7054.04	5.7	61	5.2	<0.2	<1	<1	65	**6.8**	<0.03	<0.02	<0.01	5.3	3.9	66	0.6	61	4.5	1.0
MW-3	8/12/2014	4.62	7051.75	5.6	62	10.5	0.3	<1	<1	69	**9.3**	<0.03	0.072	0.033	5.8	7.3	224	2.8	62	5.5	1.4
MW-3	10/14/2014	7.12	7049.25	5.5	70	9.1	<0.2	<1	<1	64	<1.8	<0.03	0.052	0.011	6.4	4.5	187	0.1	70	5.7	1.5
MW-3	6/17/2015	1.98	7054.39	7.8	68	6.7	0.3	<1	<1	63	<1.8	<0.03	<0.02	<0.01	5.2	4.1	197	4.6	68	5.5	1.4

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Well	Date	Depth To GW (ft)	GW Elev. (ft, NAVD88)	Field pH	Field EC (µS/cm)	Temp. (C)	NO3-N (mg/L)	TKN (mg/L)	Ammonia as N	TDS (mg/L)	Total Coliform (MPN/100ml)	B (mg/L)	Fe (mg/L)	Mn (mg/L)	Na (mg/L)	Cl (mg/L)	ORP (mV)	Dissolved Oxygen (mg/L)	Lab SC (µS/cm)	Ca (mg/L)	Mg (mg/L)
MW-3	9/9/2015	4.87	7051.50	7.4	67	9.0	<0.2	<1	<1	75	**7.8**	<0.03	<0.03	<0.01	5.5	3.8	164	3.3	67	5.1	1.4
MW-3	11/13/2015	5.78	7050.59	6.0	68	10.6	<0.2	<1	<1	67	<1.8	<0.03	<0.03	<0.01	5.1	4.1	243	--	68	5.3	1.5
MW-3	7/7/2016	2.08	7054.29	5.7	68	5.7	<0.2	<1	<1	69	<1.8	<0.03	<0.03	0.022	4.9	5.3	--	--	68	6.1	1.5
MW-3	9/8/2016	4.62	7051.75	5.5	87	12.7	<0.1	0.35	<0.1	66	**230**	<0.03	<0.03	0.041	5.4	9.6	--	--	--	7.4	1.9
MW-3	10/20/2016	2.37	7054.00	5.8	88	9.1	<0.1	0.35	<0.1	71	<1.8	<0.03	<0.03	<0.01	6.1	9.9	--	--	--	7.4	2.0
MW-3	7/13/2017	2.19	7054.18	7.6	68	4.6	<0.4	<1	<1	60	2	<0.03	<0.03	<0.01	4.9	4.5	--	--	68	5.3	1.4
MW-3	8/24/2017	2.82	7053.55	6.0	79	11.7	<0.4	<1	<1	67	**330**	<0.03	<0.03	<0.01	5.3	4.3	--	--	79	6.0	1.8
MW-3	9/28/2017	3.53	7052.84	5.5	79	12.0	<0.4	2	<1	71	**7.8**	<0.03	<0.03	<0.01	5.0	3.1	--	--	79	6.8	1.8
MW-3	6/28/2018	2.20	7054.17	6.1	117	5.4	<0.2	<1	<0.2	82	<1.8						--	--			
MW-3	8/22/2018	4.30	7052.07	6.2	74	10.2	<0.2	<1	<0.2	59	**4.5**										
MW-3	10/10/2018	6.54	7049.83	6.09	81.4	7.2	<0.2	<1	<0.2	73	<1.8	<0.2	**0.96**	0.021	6.2	4.5					
MW-4	10/30/2002	4.30	7050.49	7.0			<0.050	NR[1]		294	**900**	<0.10[T]	**370[T]**	**14.8[T]**	42[T]	44.0					
MW-4	7/29/2003			7.2	231	6.0	<0.1	<0.5		170	**240**	NR[3]	NR[3]	NR[3]	NR[3]	NR[3]					
MW-4	11/13/2003	3.96	7050.83	7.2			0.05*	NR[1]			<2	<0.10[T]	**49[T]**	**2.06[T]**	10.5[T]	5.5					
MW-4	6/22/2004	2.88	7051.91	6.8	254	4.7	0.05	<1.0		172	<2	NR[3]	0.110	**0.080**	NR[3]	NR[3]					
MW-4	9/1/2004	12.95	7041.84	6.4	278	7.3	<0.050	<1.0		167	<2	NR[3]	0.170	**0.190**	NR[3]	NR[3]					
MW-4	10/13/2004	4.38	7050.41	6.8	230	8.8	<0.1	<1	<1	150	<2	0.03	<0.02	**0.580**	9.0	6.9					
MW-4	8/11/2005	3.22	7051.57	6.7	210	7.0	<0.1	<1	<1	170	<2	<0.03	0.110	0.050	9.0	6.1	34	1.3	220	25.0	8.6
MW-4	9/15/2005	3.10	7051.69	6.7	230	7.0	0.1	<1	<1	180	<2	<0.03	<0.02	**0.390**	10.0	7.5	112	1.1	240	26.0	8.8
MW-4	10/13/2005	3.20	7051.59	7.3	25	7.5	0.2	1	<1	160	<2	<0.03	**0.760**	**1.300**	10.0	8.4	8	9.6	260	28.0	9.2
MW-4	6/29/2006	2.65	7052.14	7.2	193	5.0	0.1	<1	<1	130	<2	<0.03	0.020	0.030	8.0	4.8	165	1.5	200	22.0	7.4
MW-4	8/2/2006	3.08	7051.71	8.3	186	8.2	<0.1	<1	<1	150	<2	<0.03	<0.02	0.030	9.0	5.9	94	0.7	200	22.0	7.4
MW-4	10/10/2006	3.00	7051.79	6.9	205	6.9	<0.1	1	<1	160	2	<0.03	<0.02	0.050	10.0	6.1	101	1.5	210	24.0	7.9
MW-4	7/12/2007	3.70	7051.09	7.2	180	10.0	<0.1	0.1	<1	180	<2	<0.03	0.031	**0.059**	10.0	6.3	213	1.6	200	24.0	7.5
MW-4	8/29/2007	3.30	7051.49	7.0	187	10.1	<0.1	<1	<1	140	<2	<0.03	0.160	**0.073**	8.0	6.7	127	6.6	200	22.0	7.3
MW-4	9/26/2007	3.60	7051.19	6.8	191	9.5	<0.1	<1	<1	140	<2	<0.03	0.067	**0.067**	9.0	6.4	-106	9.4	210	21.0	7.0
MW-4	7/8/2008	3.00	7051.79	6.9	203	8.2	<0.1	<1	<1	180	<2	<0.03	0.060	0.030	8.0	6.6	216	1.1	220	24.0	8.0
MW-4	9/18/2008	3.49	7051.30	7.0	196	9.5	<0.1	<1	<1	160	<2	<0.03	<0.02	<0.01	9.0	6.3	476	2.4	210	20.0	6.5
MW-4	10/16/2008	3.75	7051.04	7.7	191	9.5	<0.1	<0.1	<1	170	2	<0.03	0.020	<0.01	9.0	6.3	133	6.2	210	22.0	7.2
MW-4	7/7/2009	3.35	7051.44	7.0	207	7.3	0.4	2	<1	210	<2	<0.03	0.040	0.040	9.0	6.6	476	5.6	220	25.0	8.2
MW-4	9/30/2009	3.30	7051.49	4.5	199	8.1	<0.1	<1	<1	160	<2	<0.03	0.080	<0.01	9.0	7.2	243	3.9	200	23.0	7.0
MW-4	10/26/2009	3.35	7051.44	6.2	188	8.6	0.3	<1	<1	220	**1300**	<0.03	0.030	0.260	9.0	8.2	300	4.7	240	25.0	7.5
MW-4	7/13/2010	2.50	7052.29	6.6	227	5.5	<0.1	<1	<1	150	2	<0.03	0.030	<0.01	9.0	6.9	105	0.6	230	25.0	8.3
MW-4	8/24/2010	3.03	7051.76	6.4	228	6.9	<0.1	<1	<1	180	<2	<0.03	<0.02	0.040	9.0	7.1	83	0.2	230	23.0	7.6
MW-4	11/4/2010	2.15	7052.64	6.5	194	7.8	<0.1	<1	<1	140	**50**	<0.03	<0.02	0.040	8.0	6.9	172	0.1	190	21.0	6.5
MW-4	7/21/2011	1.60	7053.19	6.9	208	5.3	<0.1	<1	<1	160	<2	<0.03	<0.02	<0.01	7.4	4.8	104	0.4	210	21.0	7.1
MW-4	9/8/2011	2.85	7051.94	6.9	215	6.6	<0.1	1	<1	150	<2	<0.03	<0.02	0.019	7.8	6.2	84	0.2	220	18.4	7.2
MW-4	10/20/2011	2.30	7052.49	7.0	191	7.3	<0.1	<1	<1	140	2	<0.03	<0.02	**0.079**	7.4	6.1	88	0.2	190	17.4	5.8
MW-4	6/26/2012	2.55	7052.24	8.0	125	6.4	<0.1	<1	<1	130	<1.8	<0.03	<0.02	0.022	9.5	20.0	94	0.4	130	22.2	7.5
MW-4	7/31/2012	3.00	7051.79	6.6	204	6.9	<0.2	2	<1	150	**6.8**	<0.03	<0.02	0.012	8.6	6.4	86	0.1	200	22.4	7.0
MW-4	10/9/2012	4.30	7050.49	5.8	191	8.1	<0.2	<1	<1	140	<1.8	<0.03	0.020	0.046	8.3	6.4	357	1.0	190	18.2	5.9
MW-4	5/30/2013	2.30	7052.49	6.4	210	6.1	<0.2	<1	<1	150	<1.8	<0.03	<0.02	0.027	7.7	6.9	109	--	210	20.8	7.2
MW-4	8/21/2013	3.30	7051.49	6.5	200	8.2	<0.2	<1	<1	140	<1.8	<0.03	<0.02	0.030	7.5	6.8	448	0.4	200	18.8	6.3
MW-4	10/15/2013	4.31	7050.48	6.6	200	8.9	<0.2	<1	<1	150	<1.8	<0.03	<0.02	0.014	8.2	6.8	553	0.5	200	21.8	6.5
MW-4	6/12/2014	2.66	7052.13	5.6	227	6.1	<0.2	<1	<1	160	<1.8	<0.03	<0.02	<0.01	8.5	7.3	129	0.3	230	23.1	8.2

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Well	Date	Depth To GW (ft)	GW Elev. (ft, NAVD88)	Field pH	Field EC (µS/cm)	Temp. (C)	NO3-N (mg/L)	TKN (mg/L)	Ammonia as N	TDS (mg/L)	Total Coliform (MPN/100ml)	B (mg/L)	Fe (mg/L)	Mn (mg/L)	Na (mg/L)	Cl (mg/L)	ORP (mV)	Dissolved Oxygen (mg/L)	Lab SC (µS/cm)	Ca (mg/L)	Mg (mg/L)
MW-4	8/12/2014	3.57	7051.22	6.9	208	7.9	<0.2	<1	<1	160	<1.8	<0.03	0.026	**0.068**	8.5	6.8	213	0.1	210	21.8	6.9
MW-4	10/14/2014	4.69	7050.10	6.7	201	9.0	<0.2	<1	<1	130	<1.8	<0.03	<0.02	0.009	7.7	6.8	574	0.1	200	18.9	6.8
MW-4	6/17/2015	2.41	7052.38	7.1	217	7.1	<0.2	<1	<1	140	<1.8	<0.03	<0.02	<0.01	7.7	6.9	-7	0.1	220	20.7	7.0
MW-4	9/9/2015	3.72	7051.07	6.7	203	9.1	<0.2	<1	<1	160	2	0.034	<0.03	0.024	8.2	6.8	109	0.2	200	20.1	6.6
MW-4	11/13/2015	3.16	7051.63	6.8	189	8.9	<0.2	<1	<1	130	<1.8	<0.03	<0.03	<0.01	8.2	7.7	253	--	190	18.4	5.7
MW-4	7/7/2016	2.82	7051.97	6.1	215	9.0	<0.2	<1	<1	150	<1.8	<0.03	<0.03	0.014	8.1	6.2	--	--	220	22.6	7.2
MW-4	9/8/2016	3.58	7051.21	5.4	201	8.8	<0.1	0.66	<0.1	180	<1.8	<0.03	<0.03	0.037	8.2	6.7	--	--	--	20.9	6.7
MW-4	10/20/2016	2.29	7052.50	6.1	169	8.5	0.17	0.31	<0.1	120	**230**	<0.03	<0.03	<0.01	7.3	5.5	--	--	--	18.4	5.9
MW-4	7/13/2017	2.36	7052.43	7.8	197	6.3	<0.4	<1	<1	140	<1.8	<0.03	<0.03	<0.01	7.9	4.0	--	--	200	19.4	6.5
MW-4	8/24/2017	2.82	7051.97	7.3	199	7.9	<0.4	<1	<1	140	**490**	<0.03	<0.03	<0.01	8.0	5.2	--	--	200	17.2	6.5
MW-4	9/28/2017	3.02	7051.77	6.0	201	9.4	<0.4	<1	<1	140	**13**	<0.03	<0.03	**0.288**	8.0	5.9	--	--	200	20.6	6.3
MW-4	6/28/2018	2.60	7052.19	6.9	289	6.0	<0.2	<1	<0.2	206	<1.8						--	--			
MW-4	8/22/2018	3.45	7051.34	7.2	407	7.3	<0.2	<1	<0.2	140	<1.8										
MW-4	10/10/2018	4.41	7050.38	6.8	205	6.9	3	<1	<0.2	150	<1.8	<0.2	**1.4**	**0.086**	8.2	7.0					
MW-5	9/1/2004	12.95	7190.83	6.6	307	6.4	0.064	<1.0		276	**80**	NR[3]	**1.280**	**0.200**	NR[3]	NR[3]					
MW-5	10/13/2004	13.74	7190.04	6.2	230	8.9	<0.1	2	<1	340	**500**	0.08	<0.02	**0.230**	18.0	28.0					
MW-5	8/11/2005	11.74	7192.04	6.3	110	15.7	<0.1	2	<1	180	2	<0.03	**0.620**	0.060	6.0	5.5	51	4.2	120	1.0	4.4
MW-5	9/15/2005	12.50	7191.28	7.0	170	11.2	0.1	<1	<1	170	<2	<0.03	**0.750**	**0.130**	7.0	5.8	41	NS	120	12.0	4.6
MW-5	10/13/2005	9.27	7194.51	6.5	103	8.8	0.2	<1	<1	120	**11**	<0.03	0.210	0.040	6.0	8.5	133	8.5	110	8.9	3.9
MW-5	6/29/2006	12.50	7191.28	7.6	71	14.7	<0.1	<1	<1	120	<2	<0.03	0.280	0.050	4.0	4.1	159	6.5	81	5.8	2.5
MW-5	8/2/2006	11.49	7192.29	8.4	34	19.8	<0.1	<1	<1	120	<2	<0.03	0.090	0.040	8.0	8.0	98	5.0	98	6.4	2.5
MW-5	10/11/2006	11.89	7191.89	5.8	93	8.4	<0.1	1	<1	170	2	<0.03	**0.540**	**0.060**	6.0	3.6	186	5.7	110	12.0	4.6
MW-5	7/12/2007	13.10	7190.68	6.1	142	13.9											226	NS			
MW-5	8/29/2007	13.50	7190.28	ed dry before sampling																	
MW-5	9/26/2007	13.70	7190.08	6.7	88	11.6											-87	8.9			
MW-5	7/8/2008	13.00	7190.78	7.3	104	15.1											136	NS			
MW-5	9/18/2008	13.80	7189.98	ed dry before sampling																	
MW-5	10/16/2008	13.95	7189.83	ed dry before sampling																	
MW-5	7/7/2009	12.80	7190.98	6.7	214	11.0	0.3	<1	<1	230	<2	<0.03	**0.430**	**0.100**	10.0	4.8	818	8.1	130	11.0	3.8
MW-5	9/30/2009	13.30	7190.48	6.3	109	8.6	0.4	NS	NS	NS	NS	0.23	<0.02	0.050	22.0	5.3	141	4.6	130	9.9	3.4
MW-5	10/26/2009	13.25	7190.53	ed dry before sampling																	
MW-5	7/13/2010	11.50	7192.28	6.0	94	8.0	<0.1	<1	<1	200	2	<0.03	0.270	**0.060**	5.0	5.1	158	2.5	94	8.0	2.7
MW-5	8/24/2010	12.52	7191.26	6.7	95	11.0	<0.1	<1	<1	170	2	<0.03	<0.02	0.020	5.0	4.8	129	7.1	95	7.9	3.3
MW-5	11/4/2010	12.15	7191.63	6.1	98	7.4	<0.1	<1	<1	84	**23**	0.06	<0.02	0.020	6.0	5.5	209	6.5	98	7.5	3.0
MW-5	7/21/2011	9.15	7194.63	4.9	74	5.7	<0.1	<1	<1	100	**4**	<0.03	0.121	**0.072**	4.1	3.6	115	4.4	74	5.9	2.3
MW-5	9/8/2011	12.50	7191.28	6.5	101	8.0	<0.1	1	<1	150	<2	<0.03	**2.400**	**0.056**	5.1	4.0	102	5.7	100	8.2	4.0
MW-5	10/20/2011	11.58	7192.20	6.0	95	7.0	<0.1	<1	<1	150	**4.5**	<0.03	0.216	0.012	4.1	4.5	157	4.5	95	8.1	3.0
MW-5	6/26/2012	12.70	7191.08	6.9	26	7.1	0.1	<1	<1	130	IVS	0.074	0.039	**0.054**	6.9	8.2	58	15.3	120	9.5	3.9
MW-5	7/31/2012	11.87	7191.91	6.3	106	9.7	<0.2	<1	<1	120	<1.8	<0.03	<0.02	0.037	4.8	4.7	231	5.3	110	10.2	3.7
MW-5	10/9/2012	14.64	7189.14	ed dry before sampling																	
MW-5	5/30/2013	13.20	7190.58	6.0	85	9.9	<0.2	<1	<1	140	IVS	<0.03	0.151	0.049	4.8	4.7	390	--	85	6.6	2.7
MW-5	8/21/2013	12.99	7190.79	6.0	40	21.8	<0.2	<1	<1	110	<1.8	<0.03	0.074	0.016	3.9	5.1	702	6.2	40	6.2	2.3
MW-5	10/15/2013	14.06	7189.72	8.1	91	10.2	<0.2	<1	<1	160	<1.8	<0.03	<0.02	<0.01	10.1	11.0	694	11.6	91	6.8	2.6
MW-5	6/12/2014	13.11	7190.67	5.8	80	11.3	<0.2	<1	<1	240	<1.8	<0.03	0.046	<0.01	4.3	5.1	692	7.8	80	6.9	3.0
MW-5	8/12/2014	13.01	7190.77	5.6	111	3.3	<0.2	<1	<1	120	14	<0.03	0.284	**0.063**	5.4	6.0	279	3.3	110	10.1	3.9
MW-5	10/14/2014	14.23	7189.55	ed dry before sampling																	

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Well	Date	Depth To GW (ft)	GW Elev. (ft, NAVD88)	Field pH	Field EC (µS/cm)	Temp. (C)	NO3-N (mg/L)	TKN (mg/L)	Ammonia as N	TDS (mg/L)	Total Coliform (MPN/100ml)	B (mg/L)	Fe (mg/L)	Mn (mg/L)	Na (mg/L)	Cl (mg/L)	ORP (mV)	Dissolved Oxygen (mg/L)	Lab SC (µS/cm)	Ca (mg/L)	Mg (mg/L)
MW-5	6/17/2015	13.19	7190.59	4.5	106	11.7	<0.2	<1	<1	150	<1.8	0.041	<0.02	**0.137**	4.8	6.4	418.2	6.9	110	8.7	3.5
MW-5	9/9/2015	12.44	7191.34	7.0	108	11.8	<0.2	<1	<1	220	IVS	<0.03	<0.03	**0.078**	5.5	6.8	675.4	5.4	110	9.6	3.9
MW-5	11/12/2015	13.23	7190.55	6.6	108	7.7	<0.2	<1	<1	220	IVS	<0.03	<0.03	**0.071**	4.2	6.7	200.1	--	110	9.5	3.7
MW-5	7/7/2016	12.05	7191.73	5.6	110	9.3	<0.2	<1	<1	130	<1.8	<0.03	<0.03	**0.034**	6.5	6.3	--	--	110	15.5	5.1
MW-5	9/8/2016	13.26	7190.52	7.0	121	11.3											--	--	IVS		
MW-5	10/20/2016	12.56	7191.22	would not pump																	
MW-5	7/13/2017	13.24	7190.54	would not pump																	
MW-5	8/24/2017	12.83	7190.95	6.0	111	10.4	<0.4	<2	<2	120	**79**	<0.03	0.1	**0.074**	5.4	5.3	--	--	110	8.0	3.4
MW-5	9/28/2017	13.64	7190.14	6.9	108	6.7	<0.4	2	<1	120	2	<0.03	<0.03	**0.059**	4.9	5.2	--	--	110	8.6	3.3
MW-5	6/29/2018	10.70	7193.08	6.1	145	5.6	<0.2	<1	<0.2	103	<1.8						--	--			
MW-5	8/23/2018	13.13	7190.65	6.4	259	6.6	pumped dry														
MW-5	10/10/2018	13.96	7189.82	IVS																	
MW-6	10/30/2002	6.45	7053.04	6.6			<0.050	NR[1]		376	**240**	<0.10[T]	**335**[T]	**6.89**[T]	36[T]	59.0					
MW-6	7/29/2003			7.1	457	7.5	<0.1	<0.5		260	<2	NR[3]	NR[3]	NR[3]	NR[3]	NR[3]					
MW-6	11/13/2003	6.17	7053.32	7.0			<0.050*	NR[1]			<2	<0.10[T]	**132**[T]	**4.78**[T]	18.5[T]	6.9					
MW-6	6/22/2004	2.14	7057.35	7.1	508	4.5	<0.05	<1.0		280	<2	NR[3]	0.210	**1.760**	NR[3]	NR[3]					
MW-6	9/1/2004	5.43	7054.06	6.8	479	6.5	<0.050	<1.0		297	<2	NR[3]	**0.390**	**2.190**	NR[3]	NR[3]					
MW-6	10/13/2004	6.39	7053.10	7.1	470	7.5	<0.1	<1	<1	320	<2	0.03	<0.02	**2.100**	16.0	6.6					
MW-6	8/11/2005	3.21	7056.28	6.9	470	6.9	<0.1	<1	<1	300	<2	<0.03	**0.650**	**2.400**	17.0	7.0	14	1.5	500	71.0	16.0
MW-6	9/15/2005	4.71	7054.78	6.7	440	7.0	0.2	1	<1	290	<2	<0.03	**0.340**	**2.200**	17.0	7.1	41	<0.2	460	66.0	15.0
MW-6	10/13/2005	5.15	7054.34	7.1	450	7.3	0.2	<1	<1	290	2	<0.03	**0.530**	**2.200**	16.0	7.0	10	8.8	470	62.0	14.0
MW-6	6/29/2006	1.11	7058.38	7.5	431	7.6	<0.1	<1	<1	270	<2	<0.03	0.290	**2.100**	15.0	7.4	25	0.6	450	62.0	14.0
MW-6	8/2/2006	3.63	7055.86	7.6	417	8.6	<0.1	<1	<1	280	<2	<0.03	0.300	**2.100**	16.0	6.7	-38	0.5	460	62.0	14.0
MW-6	10/10/2006	5.60	7053.89	7.3	476	7.1	<0.1	<1	<1	300	<2	<0.03	**0.310**	**2.400**	17.0	6.7	-12	2.5	500	70.0	15.0
MW-6	7/12/2007	4.40	7055.09	7.1	434	8.0	<0.1	<1	<1	370	<2	<0.03	**0.300**	**2.400**	17.0	6.3	52	2.3	460	68.0	15.0
MW-6	8/29/2007	5.90	7053.59	7.1	461	8.8	<0.1	<1	<1	280	**50**	<0.03	**0.430**	**2.600**	17.0	7.4	45	4.5	490	69.0	15.0
MW-6	9/26/2007	6.70	7052.79	6.9	473	8.4	<0.1	<1	<1	280	**4**	<0.03	**0.520**	**2.500**	16.0	7.2	-123	9.9	500	65.0	15.0
MW-6	7/8/2008	3.00	7056.49	7.0	473	8.1	<0.1	<1	<1	330	<2	<0.03	**0.450**	**2.300**	15.0	6.9	21	3.1	500	67.0	16.0
MW-6	9/18/2008	6.13	7053.36	7.1	490	8.1	<0.1	<1	<1	390	<2	<0.03	0.220	**2.400**	17.0	6.7	78	2.7	510	69.0	16.0
MW-6	10/16/2008	6.85	7052.64	7.3	481	7.1	<0.1	<0.1	<1	320	<2	<0.03	**0.580**	**2.700**	16.0	7.0	18	8.3	510	70.0	16.0
MW-6	7/7/2009	2.70	7056.79	7.2	490	7.3	<0.1	<1	<1	370	<2	<0.03	**0.900**	**2.800**	16.0	7.1	232	2.0	500	71.0	16.0
MW-6	9/30/2009	6.50	7052.99	6.8	464	7.3	<0.1	<1	<1	320	<2	<0.03	**0.630**	**2.900**	16.0	7.3	-32	1.8	510	71.0	15.0
MW-6	10/26/2009	5.40	7054.09	6.7	389	7.1	<0.1	<1	<1	320	<2	<0.03	**1.000**	**2.700**	16.0	7.2	24	0.3	520	68.0	15.0
MW-6	7/13/2010	1.70	7057.79	6.8	485	5.5	<0.1	<1	<1	310	2	<0.03	**0.620**	**2.600**	16.0	7.0	-98	0.5	490	66.0	15.0
MW-6	8/24/2010	4.66	7054.83	6.7	497	6.3	<0.1	<1	<1	430	<2	<0.03	<0.02	**2.700**	19.0	6.4	-25	0.3	500	64.0	15.0
MW-6	11/4/2010	1.05	7058.44	6.5	479	6.9	<0.1	<1	<1	330	<2	<0.03	**0.710**	**3.100**	15.0	6.3	-22	0.4	480	63.0	14.0
MW-6	7/21/2011	0.70	7058.79	7.0	492	5.5	<0.1	<1	<1	320	<2	<0.03	**0.582**	**2.160**	15.7	6.6	43	0.3	490	55.1	14.0
MW-6	9/8/2011	4.33	7055.16	7.0	507	6.3	<0.1	<1	<1	280	<2	<0.03	**0.616**	**2.530**	13.6	6.1	-38	0.4	510	57.3	15.8
MW-6	10/20/2011	1.86	7057.63	6.6	416	6.5	<0.1	<1	<1	250	**6.8**	<0.03	**0.793**	**2.380**	13.5	4.0	17	0.7	420	43.8	11.9
MW-6	6/26/2012	2.60	7056.89	6.8	310	5.2	<0.1	<1	<1	300	<1.8	<0.03	**0.724**	**4.090**	15.6	6.2	62	1.1	310	66.8	16.8
MW-6	7/31/2012	4.65	7054.84	6.8	516	6.4	<0.2	<1	<1	310	**4.5**	<0.03	**0.493**	**2.920**	15.1	6.1	29	0.1	520	65.1	15.2
MW-6	10/9/2012	7.80	7051.69	6.7	525	6.7	<0.2	<1	<1	340	<1.8	<0.03	**0.812**	**2.280**	15.0	6.4	28	1.3	530	60.9	15.3
MW-6	5/30/2013	6.48	7053.01	6.5	375	6.2	<0.2	<1	<1	250	<1.8	<0.03	0.107	**2.070**	12.3	4.7	-3	--	380	44.0	10.6
MW-6	8/21/2013	5.10	7054.39	6.5	469	8.5	<0.2	<1	<1	270	<1.8	<0.03	**0.644**	**2.700**	13.9	6.1	18	0.5	470	54.2	13.4
MW-6	10/15/2013	6.71	7052.78	6.3	523	7.5	<0.2	<1	<1	310	2	<0.03	**0.698**	**2.700**	16.2	6.4	52	0.8	520	76.4	16.2

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Well	Date	Depth To GW (ft)	GW Elev. (ft, NAVD88)	Field pH	Field EC (µS/cm)	Temp. (C)	NO3-N (mg/L)	TKN (mg/L)	Ammonia as N	TDS (mg/L)	Total Coliform (MPN/100ml)	B (mg/L)	Fe (mg/L)	Mn (mg/L)	Na (mg/L)	Cl (mg/L)	ORP (mV)	Dissolved Oxygen (mg/L)	Lab SC (µS/cm)	Ca (mg/L)	Mg (mg/L)
MW-6	6/12/2014	2.60	7056.89	5.9	455	5.9	<0.2	<1	<1	310	<1.8	<0.03	**0.521**	**2.780**	14.7	6.2	7	0.4	490	62.1	15.4
MW-6	8/12/2014	4.90	7054.59	5.7	529	7.4	<0.2	2	<1	370	<1.8	<0.03	**0.747**	**2.870**	15.7	6.6	42	0.1	530	72.7	16.0
MW-6	10/14/2014	6.96	7052.53	6.5	549	7.5	<0.2	<1	<1	370	<1.8	<0.03	**0.736**	**2.910**	14.9	6.8	48	0.5	550	67.6	17.5
MW-6	6/17/2015	2.12	7057.37	7.4	342	6.6	0.3	<1	<1	240	<1.8	0.03	<0.02	**1.850**	10.5	4.0	49	0.1	340	39.3	9.5
MW-6	9/9/2015	4.50	7054.99	6.5	457	8.4	<0.2	<1	<1	280	<1.8	0.045	**0.656**	**2.710**	14.2	5.2	96	0.8	460	57.2	13.7
MW-6	11/12/2015	0.00	7059.49	6.2	209	8.1	<0.2	<1	<1	120	<1.8	<0.03	**0.176**	**0.815**	7.5	9.7	93	--	210	23.8	6.0
MW-6	7/7/2016	2.15	7057.34	6.3	325	7.1	<0.2	<1	<1	190	<1.8	<0.03	**0.800**	**1.840**	11.0	4.5	--	--	330	40.6	9.5
MW-6	9/8/2016	5.84	7053.65	6.2	451	7.8	<0.1	0.31	0.1	280	<1.8	<0.03	**0.838**	**2.840**	14.5	6.0	--	--	--	59.4	13.9
MW-6	10/20/2016	3.53	7055.96	6.9	362	7.3	<0.1	0.44	0.11	230	<1.8	<0.03	**0.812**	**2.090**	12.3	4.7	--	--	--	48.5	11.5
MW-6	7/13/2017	1.41	7058.08	7.4	375	5.9	<0.4	<1	<1	230	**4**	<0.03	**0.823**	**2.240**	12.4	4.4	--	--	380	45.9	10.9
MW-6	8/24/2017	1.65	7057.84	6.4	216	7.8	<0.4	<1	<1	130	**220**	<0.03	**0.422**	**1.160**	8.3	2.3	--	--	220	22.3	6.3
MW-6	9/28/2017	1.58	7057.91	6.1	167	7.9	<0.4	<1	<1	110	<1.8	<0.03	**0.413**	**0.768**	6.5	2.1	--	--	170	18.3	4.5
MW-6	6/29/2018	2.80	7056.69	7.2	1100	5.7	<0.2	<1	<0.2	706	<1.8						--	--			
MW-6	8/23/2018	6.00	7053.49	7.0	530	6.4	<0.2	<1	<0.2	290	<1.8										
MW-6	10/10/2018	7.43	7052.06	7.0	555	5.9	0.98	<1	<0.2	310	<1.8	<0.2	**7.300**	**3.200**	16.0	7.2					
Discharge Pump	8/11/2005						<0.1	12	8.5	120	**23**	<0.03	**0.630**	**0.200**	14.0	13.0			190	6.8	1.3
Discharge Pump	9/15/2005						1.1	8	6.4	140	**>16000**	0.06	**1.000**	0.050	23.0	17.0		0.3	250	7.5	1.8
Discharge Pump	10/13/2005						1.7	13	11.0	150	**800**	0.06	**0.840**	0.040	24.0	20.0			290	6.8	1.7
Discharge Pump	6/29/2006						<0.1	8	7.0	100	**8**	0.04	**2.600**	**0.500**	13.0	13.0			180	6.8	1.4
Discharge Pump	8/2/2006						0.1	12	9.0	120	<2	0.05	**0.940**	**0.060**	18.0	17.0			230	7.1	4.5
Discharge Pump	10/11/2006						0.7	12	10.0	100	**23**	0.06	**0.400**	0.050	23.0	16.0			150	8.1	2.0
Discharge Pump	7/12/2007						<0.1	7	4.3	210	**500**	<0.03	**2.700**	**0.400**	17.0	12.0			170	7.2	1.5
Discharge Pump	7/8/2008	7.3	225	20.0			<0.1	<1	<1	140	**22**	0.05	**1.800**	**0.460**	18.0	15.0	98	3.1	240	13.0	3.0
Discharge Pump	9/18/2008	8.3	143	18.6			<0.1	<1	<1	230	**230**	0.07	**3.000**	**0.150**	25.0	22.0	219	8.8	230	3.2	0.6
Discharge Pump	10/16/2008						0.5	4.97	<1	250	**1300**	0.08	**1.300**	**0.120**	34.0	21.0			320	16.0	3.4
Discharge Pump	7/7/2009						<0.1	14.00	<1	180	**50**	0.05	**1.500**	**0.290**	23.0	19.0			300	12.0	2.1
Treatment Pond	8/11/2005						<0.1	14	9.6	120	**>3000**	0.04	0.170	0.020	20.0	3.1			76	7.3	1.7
Treatment Pond	9/15/2005						2.1	10	8.1	130	**>16000**	0.07	0.120	0.030	24.0	17.0		2.8	260	8.5	1.8
Treatment Pond	10/13/2005						1.7	15	11.0	150	**2400**	0.05	0.210	**0.090**	22.0	20.0			290	9.8	2.4
Treatment Pond	6/29/2006						0.1	9	8.0	91	**170**	0.03	0.290	0.040	22.0	10.0			180	6.1	1.3
Treatment Pond	8/2/2006						0.1	13	9.0	130	**>16000**	<0.03	**0.580**	0.040	18.0	13.0			230	<0.03	4.6
Treatment Pond	10/11/2006						1.1	19	16.0	150	**16000**	0.09	**0.620**	0.030	30.0	17.0			340	10.0	2.2
Treatment Pond	7/12/2007						0.2	18	11.6	240	**16000**	0.042	**0.550**	0.070	25.0	16.0			270	9.7	1.9
Treatment Pond	7/8/2008	7.8	281	26.2			0.4	14	<1	180	**5000**	0.06	**0.470**	0.040	25.0	16.0	102	3.0	300	9.0	2.0
Treatment Pond	9/18/2008	7.3	401	16.0			0.7	22	16.0	240	**16000**	0.08	**0.520**	0.060	35.0	20.0	213	7.8	420	11.0	2.0
Treatment Pond	10/16/2008						1.4	23	<1	200	**9000**	0.08	**0.340**	0.020	36.0	21.0			400	12.0	2.3
Treatment Pond	7/7/2009						1	12	<1	200	**9000**	0.04	**0.310**	0.050	20.0	14.0			250	9.9	1.8
Bloods Creek Upstream	8/11/2005						<0.1	2	<1	86	170	<0.03	0.360	0.020	5.0	2.0			67	6.5	1.6
Bloods Creek Upstream	6/20/2006						<0.1	<1	<1	46	<2	<0.03	<0.02	<0.01	1.0	1.2			34	3.1	0.7
Bloods Creek Upstream	7/12/2007						<0.1	<1	<1	69	14	<0.03	0.210	0.060	5.0	1.1			57	6.5	1.3
Bloods Creek Upstream	7/8/2008	7.2	66	24.6			<0.1	<1	<1	64	130	<0.03	0.170	0.020	5.0	1.8	204	5.8	51	5.0	1.0
Bloods Creek Upstream	7/7/2009						<0.1	<1	<1	100	500	<0.03	0.280	0.040	4.0	2.2			56	5.9	1.3
Bloods Creek Downstream	8/11/2005						<0.1	2	<1	100	>16000	0.05	0.160	0.020	20.0	3.2			76	7.3	1.7

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Well	Date	Depth To GW (ft)	GW Elev. (ft, NAVD88)	Field pH	Field EC (µS/cm)	Temp. (C)	NO3-N (mg/L)	TKN (mg/L)	Ammonia as N	TDS (mg/L)	Total Coliform (MPN/100ml)	B (mg/L)	Fe (mg/L)	Mn (mg/L)	Na (mg/L)	Cl (mg/L)	ORP (mV)	Dissolved Oxygen (mg/L)	Lab SC (µS/cm)	Ca (mg/L)	Mg (mg/L)
Bloods Creek Downstream	6/20/2006						<0.1	<1	<1	84	17	<0.03	0.050	<0.01	1.0	1.4			40	3.7	0.9
Bloods Creek Downstream	7/12/2007						<0.1	<1	<1	110	>16000	<0.03	**0.340**	0.020	5.0	2.6			71	7.7	2.1
Bloods Creek Downstream	7/8/2008			7.3	61	25.0	<0.1	<1	<1	98	500	<0.03	0.220	<0.01	3.0	2.8	178	6.7	65	6.0	2.0
Bloods Creek Downstream	7/7/2009						<0.1	<1	<1	110	170	<0.03	0.290	<0.01	4.0	2.9			64	6.8	1.6

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Well	Date	K (mg/L)	HCO3 as CaCO3 (mg/L)	HCO3 as HCO3 (mg/L)	CO3 as CaCO3 (mg/L)	OH as CaCO3 (mg/L)	Total Alkalinity as CaCO3 (mg/L)	Sulfate (mg/L)	Fecal Coliform (MPN/100ml)	Hardness as CaCO3 (mg/l)	NO2-N (mg/L)	***Total Nitrogen (mg/L)	Lab pH (std units)	Ammonia as NH3 (mg/L)
MW-1	9/1/2004								2		NR[2]	NR[2]	6.9	<0.50
MW-1	10/13/2004								<2		NR[2]	1.0	7.3	
MW-1	8/11/2005	2.0	71	87	<1	<1	71	3.7	<2		<0.1	2.0	7.2	
MW-1	9/15/2005	4.0	76	93	<1	<1	76	3.9	<2		<0.1	<1	6.7	
MW-1	10/13/2005	3.0	61	74	<1	<1	61	3.0	<2		<0.1	<1	6.8	
MW-1	6/29/2006	<1	55	67	<1	<1	55	0.6	<2		<0.1	<1	5.9	
MW-1	8/2/2006	4.0	75	91	<1	<1	75	3.7	8		<0.1	<1	6.8	
MW-1	10/10/2006	2.0	70	85	<1	<1	70	3.6	<2		<0.1	<1	6.6	
MW-1	7/12/2007	5.0	87.8	107	<1	<1	88	3.7	<2		<0.1	<1	7.2	
MW-1	8/29/2007	4.4	96	117	<1	<1	96	4.5	2		<0.1	<1	7.4	
MW-1	9/26/2007	4.0	100	122	<1	<1	100	4.3	<2		<0.1	<1	7.3	
MW-1	7/8/2008	4.0	65	79	<1	<1	65	4.0	<2		<0.1	<1	7.0	
MW-1	9/18/2008	4.0	95	116	<1	<1	95	4.3	30		<0.1	<1	7.3	
MW-1	1/16/2008	4.0	90	109	<1	<1	90	4.5	4		<0.1	<1	7.2	
MW-1	7/7/2009	4.0	75	91	<1	<1	75	5.6	<2		<0.2	<1	7.3	
MW-1	9/30/2009	5.0	110	134	<1	<1	110	4.5	4		<0.1	<1	7.0	
MW-1	10/26/2009	4.0	100	122	<1	<1	100	5.1	11		<0.1	1.3	7.5	
MW-1	7/13/2010	3.0	65	79	<1	<1	65	4.4	<2		<0.1	<1	6.4	
MW-1	8/24/2010	3.0	78	95	<1	<1	78	4.7	<2		<0.1	<1	7.0	
MW-1	11/4/2010	3.0	76	93	<1	<1	76	3.3	2		<0.1	6.0	5.9	
MW-1	7/21/2011	2.9	76	93	<1	<1	76	3.6	<2		<0.1	<1	5.6	
MW-1	9/8/2011	3.1	76	93	<1	<1	76	4.7	<2		<0.1	2.0	7.0	
MW-1	10/20/2011	3.3	87	106	<1	<1	87	4.6	<2		<0.1	2.0	6.6	
MW-1	6/26/2012	2.5	54	66	<1	<1	54	3.1	<1.8	56.4	<0.1	0.2	6.7	
MW-1	7/31/2012	3.6	99	121	<1	<1	99	3.9	<1.8		<0.1	1.0	7.0	
MW-1	10/9/2012	3.5	85	104	<1	<1	85	4.4	<1.8		<0.2	2.0	6.5	
MW-1	5/30/2013	3.1	80	98	<1	<1	80	4.3	<1.8	60.2	<0.2	<1	6.4	
MW-1	8/21/2013	3.3	85	104	<1	<1	85	4.4	<1.8	65.4	<0.2	<1	6.6	
MW-1	10/15/2013	4.7	100	122	<1	<1	100	4.3	<1.8	88.6	<0.2	<1	6.4	
MW-1	6/12/2014	2.5	58	71	<1	<1	58	4.6	<1.8	52.7			6.2	
MW-1	8/12/2014	3.6	86	105	<1	<1	86	4.4	<1.8	66.0			7.4	
MW-1	10/14/2014	3.7	86	105	<1	<1	86	4.0	<1.8	77.6			7.2	
MW-1	6/17/2015	2.0	42	51	<1	<1	42	3.6	<1.8					
MW-1	9/9/2015	3.7	80	98	<1	<1	80	4.2	<1.8	69.2			6.6	
MW-1	11/12/2015	3.0	68	83	<1	<1	68	4.2	<1.8	62.0			6.5	
MW-1	7/7/2016	2.9	86	105	<1	<1	86	3.6	<1.8	63.4				
MW-1	9/8/2016	3.2	80	98	<10	<10	80	3.5	<1.8	--				
MW-1	10/20/2016	3.6	81	99	<10	<10	81	3.1	6.8	--				
MW-1	7/13/2017	1.3	37	41	<1	<1	34	2.3	<1.8	--				
MW-1	8/24/2017	3.0	62	76	<1	<1	62	4.5	<1.8	--				
MW-1	9/28/2017	2.8	60	73	<1	<1	60	4.5	<1.8	58.8				
MW-1	6/29/2018													
MW-1	8/23/2018													
MW-1	10/10/2018													
MW-2	10/30/2002								NR[2]		<0.020	NR[2]		<0.50

Bear Valley Water District
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Well	Date	K (mg/L)	HCO3 as CaCO3 (mg/L)	HCO3 as HCO3 (mg/L)	CO3 as CaCO3 (mg/L)	OH as CaCO3 (mg/L)	Total Alkalinity as CaCO3 (mg/L)	Sulfate (mg/L)	Fecal Coliform (MPN/100ml)	Hardness as CaCO3 (mg/l)	NO2-N (mg/L)	***Total Nitrogen (mg/L)	Lab pH (std units)	Ammonia as NH3 (mg/L)
MW-2	7/29/2003								4		NR[2]	NR[2]	6.7	<0.2
MW-2	11/13/2003								NR[2]		<0.050*	NR[2]	6.7	<0.50
MW-2	6/22/2004								<2		NR[2]	NR[2]	6.5	<0.50
MW-2	9/1/2004								<2		NR[2]	NR[2]	6.5	<0.50
MW-2	10/13/2004								<2		NR[2]	10.0	7.1	
MW-2	8/11/2005	1.0	25	30	<1	<1	25	<0.5	<2		<0.1	2.0	6.9	
MW-2	9/15/2005	2.0	30	37	<1	<1	30	0.6	<2		<0.1	2.1	6.5	
MW-2	10/13/2005	2.0	25	30	<1	<1	25	<0.5	<2		<0.1	<1	6.5	
MW-2	6/29/2006	<1	20	24	<1	<1	20	<0.5	<2		<0.1	<1	5.6	
MW-2	8/2/2006	2.0	20	24	<1	<1	20	<0.5	<2		<0.1	<1	6.1	
MW-2	10/10/2006	<1	25	30	<1	<1	25	<0.5	<2		<0.1	<1	6.0	
MW-2	7/12/2007	2.0	25	30	<1	<1	25	<0.5	2		<0.1	0.7	6.8	
MW-2	8/29/2007	2.2	35	43	<1	<1	35	1.6	<2		<0.1	<1	7.0	
MW-2	9/26/2007	2.0	30	37	<1	<1	30	1.4	<2		<0.1	<1	6.7	
MW-2	7/8/2008	1.0	25	30	<1	<1	25	<0.5	<2		<0.1	<1	6.5	
MW-2	9/18/2008	2.0	25	30	<1	<1	25	0.6	<2		<0.1	3.2	6.9	
MW-2	10/16/2008	1.0	25	30	<1	<1	25	0.6	<2		<0.1	<1	7.0	
MW-2	7/7/2009	1.0	25	30	<1	<1	25	0.5	<2		<0.2	<1	7.0	
MW-2	9/30/2009	2.0	30	37	<1	<1	30	<0.5	<2		<0.1	<1	6.8	
MW-2	10/26/2009	2.0	25	30	<1	<1	25	<0.5	800		<0.1	0.5	6.7	
MW-2	7/13/2010	<1	20	24	<1	<1	20	<0.5	<2		<0.1	<1	6.1	
MW-2	8/24/2010	<1	22	27	<1	<1	22	<0.5	<2		<0.1	<1	6.3	
MW-2	11/4/2010	<1	25	30	<1	<1	25	<0.5	4		<0.1	3.0	5.8	
MW-2	7/21/2011	0.8	22	27	<1	<1	22	<0.5	<2		<0.1	<1	6.2	
MW-2	9/8/2011	1.0	27	33	<1	<1	27	<0.5	<2		<0.1	2.0	6.4	
MW-2	10/20/2011	1.0	33	40	<1	<1	33	<0.5	<2		<0.1	1.0	6.1	
MW-2	6/26/2012	0.9	30	37	<1	<1	30	<0.5	<1.8	22.7	<0.1	2.0	6.2	
MW-2	7/31/2012	1.0	35	43	<1	<1	35	<0.5	11		<0.2	<1	6.3	
MW-2	10/9/2012	1.4	30	37	<1	<1	30	0.8	<1.8		<0.2	<1	5.9	
MW-2	5/30/2013	0.8	18	22	<1	<1	18	0.5	<1.8	16.5	<0.2	<1	6.1	
MW-2	8/21/2013	1.4	28	34	<1	<1	28	0.6	<1.8	21.8	<0.2	<1	5.2	
MW-2	10/15/2013	1.4	22	27	<1	<1	22	0.6	<1.8	17.8	<0.2	<1	5.6	
MW-2	6/12/2014	0.9	18	22	<1	<1	18	0.5	<1.8	16.3			5.9	
MW-2	8/12/2014	5.8	28	34	<1	<1	28	0.6	<1.8	20.9			6.7	
MW-2	10/14/2014	1.1	24	29	<1	<1	24	0.6	<1.8	26.5			5.9	
MW-2	6/17/2015	1.0	30	36	<1	<1	30	<0.5	<1.8					
MW-2	9/9/2015	1.6	40	49	<1	<1	40	0.8	<1.8	19.5			6.9	
MW-2	11/13/2015	1.0	26	32	<1	<1	26	<0.5	2	22.5			6.1	
MW-2	7/7/2016	0.9	30	37	<1	<1	30	<0.5	<1.8	19.2				
MW-2	9/8/2016	1.1	34	41	<10	<10	34	<0.5	<1.8	--				

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Well	Date	K (mg/L)	HCO3 as CaCO3 (mg/L)	HCO3 as HCO3 (mg/L)	CO3 as CaCO3 (mg/L)	OH as CaCO3 (mg/L)	Total Alkalinity as CaCO3 (mg/L)	Sulfate (mg/L)	Fecal Coliform (MPN/100ml)	Hardness as CaCO3 (mg/l)	NO2-N (mg/L)	***Total Nitrogen (mg/L)	Lab pH (std units)	Ammonia as NH3 (mg/L)
MW-2	10/20/2016	1.1	28	34	<10	<10	28	<0.5	170	--				
MW-2	7/13/2017	1.0	16	19	<1	<1	16	<0.5	<1.8	--				
MW-2	8/24/2017	1.2	22	27	<1	<1	22	<0.5	<1.8	--				
MW-2	9/28/2017	1.1	28	34	<1	<1	28	<0.5	<1.8	22.5				
MW-2	6/28/2018													
MW-2	8/22/2018													
MW-2	10/10/2019													
MW-3	10/30/2002								NR[2]		<0.020	NR[2]		<0.50
MW-3	7/29/2003								80		NR[2]	NR[2]	6.6	<0.2
MW-3	11/13/2003								NR[2]		0.06*	NR[2]	6.0	**
MW-3	6/22/2004								<2		NR[2]	NR[2]	6.0	<0.50
MW-3	9/1/2004								<2		NR[2]	NR[2]	6.2	<0.50
MW-3	10/13/2004								<2		NR[2]	0.3	6.7	
MW-3	8/11/2005	<1	20	24	<1	<1	20	1.9	<2		<0.1	<1	6.2	
MW-3	9/15/2005	2.0	25	30	<1	<1	25	1.4	8		<0.1	<1	5.9	
MW-3	10/13/2005	2.0	20	24	<1	<1	20	1.8	<2		<0.1	2.4	6.1	
MW-3	6/29/2006	<1	20	24	<1	<1	20	1.3	<2		<0.1	<1	5.5	
MW-3	8/2/2006	2.0	20	24	<1	<1	20	1.3	<2		<0.1	0.2	5.7	
MW-3	10/10/2006	<1	20	24	<1	<1	20	1.5	<2		<0.1	2.0	5.4	
MW-3	7/12/2007	2.0	28	34	<1	<1	28	1.1	<2		<0.1	0.2	6.5	
MW-3	8/29/2007	1.7	25	30	<1	<1	25	1.6	4		<0.1	<1	6.3	
MW-3	9/26/2007	2.0	30	37	<1	<1	30	0.5	2		<0.1	<1	6.3	
MW-3	7/8/2008	1.0	35	43	<1	<1	35	1.2	<2		<0.1	<1	6.3	
MW-3	9/18/2008	2.0	20	24	<1	<1	20	2.0	<2		<0.1	<1	6.2	
MW-3	10/16/2008	2.0	30	37	<1	<1	30	2.1	<2		<0.1	0.15	6.2	
MW-3	7/7/2009	1.0	20	24	<1	<1	20	3.5	<2		<0.2	<1	6.5	
MW-3	9/30/2009	3.0	40	49	<1	<1	40	3.2	<2		<0.1	<1	6.0	
MW-3	10/26/2009	2.0	15	18	<1	<1	15	3.3	4		<0.1	0.90	6.4	
MW-3	7/13/2010	<1	20	24	<1	<1	20	<0.5	<2		<0.1	<1	6.1	
MW-3	8/24/2010	<1	27	33	<1	<1	27	<0.5	<2		<0.1	<1	5.8	
MW-3	11/4/2010	<1	25	30	<1	<1	25	<0.5	26		<0.1	3.00	5.6	
MW-3	7/21/2011	0.9	16	20	<1	<1	16	<0.5	<2		<0.1	<1	6.2	
MW-3	9/8/2011	1.1	22	27	<1	<1	22	<0.5	<2		<0.1	2.00	6.1	
MW-3	10/20/2011	1.2	27	33	<1	<1	27	<0.5	11		<0.1	1.00	6.1	
MW-3	6/26/2012	1.3	30	37	<1	<1	30	1.3	<1.8	22.1	<0.1	<1	6.0	
MW-3	7/31/2012	1.4	35	43	<1	<1	35	1.2	<1.8		<0.2	<1	6.0	
MW-3	10/9/2012	1.3	35	43	<1	<1	35	1.5	<1.8		<0.2	<1	5.7	
MW-3	5/30/2013	0.9	20	24	<1	<1	20	2.3	<1.8	15.7	<0.2	<1	5.9	
MW-3	8/21/2013	1.1	18	22	<1	<1	18	1.3	<1.8	18.7	<0.2	<1	4.2	
MW-3	10/15/2013	1.5	32	39	<1	<1	32	1.4	<1.8	21.8	<0.2	<1	5.4	
MW-3	6/12/2014	1.1	20	24	<1	<1	20	1.3	<1.8	15.3			5.7	
MW-3	8/12/2014	4.6	20	24	<1	<1	20	1.2	<1.8	19.4			5.6	
MW-3	10/14/2014	1.2	22	27	<1	<1	22	1.3	<1.8	20.5			5.5	
MW-3	6/17/2015	1.3	28	34	<1	<1	28	1.3	<1.8					

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MW-3	9/9/2015	1.6	42	51	<1	<1	42	1.4	7.8	18.7			7.4	
MW-3	11/13/2015	1.1	24	29	<1	<1	24	1.3	<1.8	19.1				
MW-3	7/7/2016	1.1	30	37	<1	<1	30	1.1	<1.8	21.7				
MW-3	9/8/2016	1.4	26	32	<10	<10	26	1.2	49	--				
MW-3	10/20/2016	1.5	27	33	<10	<10	27	1.0	<1.8	--				
MW-3	7/13/2017	1.1	50	61	<1	<1	50	1.2	<1.8	--				
MW-3	8/24/2017	1.6	38	46	<1	<1	38	1.0	<1.8	--				
MW-3	9/28/2017	1.5	40	49	<1	<1	40	1.1	<1.8	24.2				
MW-3	6/28/2018													
MW-3	8/22/2018													
MW-3	10/10/2018													
MW-4	10/30/2002								NR[2]		<0.020	NR[2]		<0.50
MW-4	7/29/2003								<2		NR[2]	NR[2]	6.5	<0.2
MW-4	11/13/2003								NR[2]		0.05*	NR[2]	6.9	**
MW-4	6/22/2004								<2		NR[2]	NR[2]	6.8	<0.50
MW-4	9/1/2004								<2		NR[2]	NR[2]	6.9	<0.50
MW-4	10/13/2004								<2		NR[2]	<1.1	7.1	
MW-4	8/11/2005	3.0	96	117	<1	<1	96	5.7	<2		<0.1	<1	6.9	
MW-4	9/15/2005	5.0	100	122	<1	<1	100	5.8	<2		<0.1	0.1	6.6	
MW-4	10/13/2005	4.0	110	134	<1	<1	110	5.1	<2		<0.1	1.2	6.8	
MW-4	6/29/2006	2.0	90	110	<1	<1	90	4.1	<2		<0.1	0.1	6.2	
MW-4	8/2/2006	5.0	85	102	<1	<1	85	6.2	<2		<0.1	<1	6.7	
MW-4	10/10/2006	<1	85	104	<1	<1	85	6.0	<2		<0.1	1.0	6.8	
MW-4	7/12/2007	4.0	87	106	<1	<1	87	6.7	<2		<0.1	0.1	6.8	
MW-4	8/29/2007	4.1	91	111	<1	<1	91	6.9	<2		<0.1	<1	7.2	
MW-4	9/26/2007	4.0	86	105	<1	<1	86	10.0	<2		<0.1	<1	7.0	
MW-4	7/8/2008	4.0	86	105	<1	<1	86	5.8	<2		<0.1	<1	7.0	
MW-4	9/18/2008	4.0	85	104	<1	<1	85	6.2	<2		<0.1	<1	6.9	
MW-4	10/16/2008	4.0	90	109	<1	<1	90	5.9	<2		<0.1	<0.1	6.9	
MW-4	7/7/2009	4.0	95	116	<1	<1	95	7.0	<2		<0.2	2.4	7.1	
MW-4	9/30/2009	4.0	80	98	<1	<	80	6.3	<2		<0.1	<1	6.8	
MW-4	10/26/2009	3.0	90	110	<1	<1	90	5.4	13		<0.1	0.3	7.1	
MW-4	7/13/2010	4.0	100	122	<1	<1	100	5.2	<2		<0.1	<1	6.6	
MW-4	8/24/2010	3.0	82	100	<1	<1	82	5.6	<2		<0.1	<1	6.4	
MW-4	11/4/2010	3.0	75	91	<1	<1	75	6.8	13		<0.1	<1	6.5	
MW-4	7/21/2011	3.7	92	112	<1	<1	92	4.1	<2		<0.1	<1	6.9	
MW-4	9/8/2011	3.1	87	106	<1	<1	87	5.0	<2		<0.1	1.0	6.9	
MW-4	10/20/2011	3.2	70	85	<1	<1	70	7.3	<2		<0.1	<1	7.0	
MW-4	6/26/2012	3.4	89	108	<1	<1	89	7.0	<1.8	86.4	<0.1	<1	8.0	
MW-4	7/31/2012	3.4	84	102	<1	<1	84	6.6	<1.8		<0.2	2.0	6.6	
MW-4	10/9/2012	3.2	75	91	<1	<1	75	6.8	<1.8		<0.2	<1	5.8	
MW-4	5/30/2013	3.5	86	105	<1	<1	86	6.1	<1.8	81.7	<0.2	<1	6.4	
MW-4	8/21/2013	3.4	89	109	<1	<1	89	6.7	<1.8	72.9	<0.2	<1	6.5	
MW-4	10/15/2013	4.0	91	111	<1	<1	91	6.7	<1.8	81.2	<0.2	<1	6.6	
MW-4	6/12/2014	4.1	89	109	<1	<1	89	5.9	<1.8	91.2			5.6	

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MW-4	8/12/2014	4.0	92	112	<1	<1	92	6.0	<1.8	82.8			6.9	
MW-4	10/14/2014	3.2	78	95	<1	<1	78	6.5	<1.8	75.2			6.7	
MW-4	6/17/2015	3.4	86	105	<1	<1	86	6.0	<1.8					
MW-4	9/9/2015	3.9	110	134	<1	<1	110	6.3	<1.8	77.4			6.7	
MW-4	11/13/2015	11.4	78	95	<1	<1	78	5.3	<1.8	69.5			6.8	
MW-4	7/7/2016	3.6	22	27	<1	<1	22	4.8	<1.8	85.9				
MW-4	9/8/2016	3.4	92	112	<10	<10	92	5.4	<1.8	--				
MW-4	10/20/2016	3.4	75	91	<10	<10	75	4.8	7.8	--				
MW-4	7/13/2017	3.3	86	104	<1	<1	86	4.2	<1.8	--				
MW-4	8/24/2017	3.7	240	292	<1	<1	240	5.8	130	--				
MW-4	9/28/2017	3.3	90	110	<1	<1	90	5.4	13	77.4				
MW-4	6/28/2018													
MW-4	8/22/2018													
MW-4	10/10/2018													
MW-5	9/1/2004								17		NR[2]	NR[2]	6.6	<0.50
MW-5	10/13/2004								2		NR[2]	2.0	6.8	
MW-5	8/11/2005	1.0	45	55	<1	<1	45	1.8	<2		<0.1	2.0	6.2	
MW-5	9/15/2005	3.0	51	62	<1	<1	51	2.0	<2		<0.1	0.1	7.6	
MW-5	10/13/2005	3.0	35	43	<1	<1	35	1.3	<2		<0.1	0.2	6.1	
MW-5	6/29/2006	2.0	25	30	<1	<1	25	0.7	<2		<0.1	<1	5.4	
MW-5	8/2/2006	3.0	35	42	<1	<1	35	1.0	<2		<0.1	<1	6.1	
MW-5	10/11/2006	<1	45	55	<1	<1	45	1.7	<2		<0.1	1.0	6.0	
MW-5	7/12/2007												Well pumped dry	
MW-5	8/29/2007													
MW-5	9/26/2007												Well pumped dry	
MW-5	7/8/2008												Well pumped dry	
MW-5	9/18/2008													
MW-5	10/16/2008													
MW-5	7/7/2009	2.0	45	55	<1	<1	45	2.7	<2		<0.2	<1	6.5	
MW-5	9/30/2009	2.0	NS	NS	NS	NS	NS	2.5	NS		0.2	NS	7.5	well pun
MW-5	10/26/2009													
MW-5	7/13/2010	3.0	35	43	<1	<1	35	<0.5	<2		<0.1	<1	6.0	
MW-5	8/24/2010	1.0	37	45	<1	<1	37	<0.5	<2		<0.1	<1	6.7	
MW-5	11/4/2010	2.0	41	50	<1	<1	41	<0.5	<2		<0.1	<1	6.1	
MW-5	7/21/2011	1.9	27	33	<1	<1	27	<0.5	<2		<0.1	<1	4.9	
MW-5	9/8/2011	2.2	43	52	<1	<1	43	<0.5	<2		<0.1	1.0	6.5	
MW-5	10/20/2011	2.2	38	46	<1	<1	38	1.7	<2		<0.1	<1	6.0	
MW-5	6/26/2012	4.6	39	48	<1	<1	39	1.0	IVS	39.8	<0.1	0.1	6.9	
MW-5	7/31/2012	2.4	39	48	<1	<1	39	2.1	<1.8		<0.2	<1	6.3	
MW-5	10/9/2012													
MW-5	5/30/2013	1.5	38	46	<1	<1	38	0.9	IVS	27.6	<0.2	<1	6.0	well pun
MW-5	8/21/2013	1.7	26	32	<1	<1	26	0.8	<1.8	25.2	<0.2	<1	6.0	
MW-5	10/15/2013	2.4	33	40	<1	<1	33	2.7	<1.8	27.3	<0.2	<1	8.1	
MW-5	6/12/2014	2.4	36	44	<1	<1	36	1.0	<1.8	29.8			5.8	
MW-5	8/12/2014	3.2	46	56	<1	<1	46	1.2	<1.8	41.1			5.6	
MW-5	10/14/2014													

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MW-5	6/17/2015	2.6	42	51	<1	<1	42	1.1	<1.8					
MW-5	9/9/2015	3.3	46	56	<1	<1	46	1.2	IVS	39.9			7.0	
MW-5	11/12/2015	1.4	42	51	<1	<1	42	1.0	IVS	39.1				
MW-5	7/7/2016	3.2	46	56	<1	<1	46	1.0	<1.8	59.5				
MW-5	9/8/2016													
MW-5	10/20/2016													
MW-5	7/13/2017													
MW-5	8/24/2017	3.2	58	71	<1	<1	58	1.0	<1.8	--				
MW-5	9/28/2017	2.9	34	41	<1	<1	34	1.0	<1.8	34.8				
MW-5	6/29/2018													
MW-5	8/23/2018													
MW-5	10/10/2018													
MW-6	10/30/2002								NR[2]		<0.020	NR[2]		<0.50
MW-6	7/29/2003								<2		NR[2]	NR[2]	6.5	<0.2
MW-6	11/13/2003								NR[2]		<0.050*	NR[2]	6.7	**
MW-6	6/22/2004								<2		NR[2]	NR[2]	7.0	<0.50
MW-6	9/1/2004								<2		NR[2]	NR[2]	7.0	<0.50
MW-6	10/13/2004								<2		NR[2]	<1.1	7.6	
MW-6	8/11/2005	5.0	250	305	<1	<1	250	1.8	<2		<0.1	<1	7.3	
MW-6	9/15/2005	4.0	240	293	<1	<1	240	1.9	<2		<0.1	1.2	7.0	
MW-6	10/13/2005	4.0	240	292	<1	<1	240	1.8	<2		<0.1	0.2	7.3	
MW-6	6/29/2006	<1	230	280	<1	<1	230	1.8	<2		<0.1	<1	6.8	
MW-6	8/2/2006	3.0	230	280	<1	<1	230	1.6	<2		<0.1	<1	6.8	<1
MW-6	10/10/2006	<1	250	304	<1	<1	250	1.9	<2		<0.1	<1	7.0	
MW-6	7/12/2007	6.0	233	284	<1	<1	233	1.9	<2		<0.1	<1	7.1	
MW-6	8/29/2007	4.3	260	317	<1	<1	260	2.1	7		<0.1	<1	7.3	
MW-6	9/26/2007	5.0	260	317	<1	<1	260	1.7	<2		<0.1	<1	7.3	
MW-6	7/8/2008	4.0	236	288	<1	<1	236	1.9	<2		<0.1	<1	7.2	
MW-6	9/18/2008	4.0	270	329	<1	<1	270	2.1	<2		<0.1	<1	7.1	
MW-6	10/16/2008	4.0	270	329	<1	<1	270	1.9	<2		<0.1	<0.1	7.7	
MW-6	7/7/2009	4.0	260	317	<1	<1	260	3.2	<2		<0.2	<1	7.2	
MW-6	9/30/2009	5.0	260	317	<1	<1	260	2.6	<2		<0.1	<1	7.0	
MW-6	10/26/2009	4.0	250	305	<1	<1	250	3.2	<2		<0.1	<1	7.6	
MW-6	7/13/2010	4.0	250	305	<1	<1	250	<0.5	<2		<0.1	<1	6.8	
MW-6	8/24/2010	3.0	230	280	<1	<1	230	<0.5	<2		<0.1	<1	6.7	
MW-6	11/4/2010	2.0	230	281	<1	<1	230	2.9	<2		<0.1	<1	6.5	
MW-6	7/21/2011	4.3	270	329	<1	<1	270	2.3	<2		<0.1	<1	7.0	
MW-6	9/8/2011	3.5	270	329	<1	<1	270	<0.5	<2		<0.1	<1	7.0	
MW-6	10/20/2011	3.7	190	232	<1	<1	190	<0.5	<2		<0.1	<1	6.6	
MW-6	6/26/2012	3.7	230	280	<1	<1	230	1.9	<1.8	236	<0.1	<1	6.8	
MW-6	7/31/2012	3.8	260	317	<1	<1	260	3.0	<1.8		<0.2	<1	6.8	
MW-6	10/9/2012	4.1	290	354	<1	<1	290	2.0	<1.8		<0.2	<1	6.7	
MW-6	5/30/2013	3.3	190	232	<1	<1	190	2.8	<1.8	154	<0.2	<1	6.5	
MW-6	8/21/2013	3.9	250	305	<1	<1	250	2.0	<1.8	191	<0.2	<1	6.5	
MW-6	10/15/2013	4.4	270	329	<1	<1	270	3.1	<1.8	257	<0.2	<1	6.3	

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MW-6	6/12/2014	4.6	260	317	<1	<1	260	3.0	<1.8	218			5.9	
MW-6	8/12/2014	4.9	310	378	<1	<1	310	3.1	<1.8	248			5.7	
MW-6	10/14/2014	4.3	280	341	<1	<1	280	2.0	<1.8	241			6.5	
MW-6	6/17/2015	2.4	190	231	<1	<1	190	1.6	<1.8					
MW-6	9/9/2015	3.3	250	305	<1	<1	250	1.8	<1.8	199			6.5	
MW-6	11/12/2015	1.4	90	110	<1	<1	90	0.8	<1.8	84			6.2	
MW-6	7/7/2016	2.6	170	207	<1	<1	170	1.2	<1.8	140				
MW-6	9/8/2016	3.3	226	276	<10	<10	226	1.7	<1.8	--				
MW-6	10/20/2016	2.9	183	223	<10	<10	183	1.8	<1.8	--				
MW-6	7/13/2017	3.0	190	231	<1	<1	190	1.4	<1.8	--				
MW-6	8/24/2017	1.9	120	146	<1	<1	120	0.9	<1.8	--				
MW-6	9/28/2017	1.3	80	98	<1	<1	80	0.7	<1.8	64.4				
MW-6	6/29/2018													
MW-6	8/23/2018													
MW-6	10/10/2018													
Discharge Pump	8/11/2005	3.0	40	49	<1	<1	40	3.6	<2		<0.1	12.0	6.7	
Discharge Pump	9/15/2005	5.0	61	74	<1	<1	61	6.1	1700		0.8	9.9	6.9	
Discharge Pump	10/13/2005	6.0	76	93	<1	<1	76	7.2	22		0.3	15.0	7.2	
Discharge Pump	6/29/2006	7.0	55	67	<1	<1	55	3.4	<2		<0.1	8.0	6.4	
Discharge Pump	8/2/2006	6.0	70	85	<1	<1	70	4.2	<2		<0.1	12.1	6.9	
Discharge Pump	10/11/2006	<1	70	85	<1	<1	70	5.6	4		0.1	12.8	7.1	
Discharge Pump	7/12/2007	6.0	52.8	64	<1	<1	52.8	3.6	2		<0.1	6.5	7.2	
Discharge Pump	7/8/2008	6.0	75	91	<1	<1	75	4.9	6		<0.1	<1	7.3	
Discharge Pump	9/18/2008	5.0	28	34	<1	<1	28	6.7	30		<0.1	<1	8.9	
Discharge Pump	10/16/2008	7.0	15	18	<1	<1	15	85.0	13		<0.1	5.5	7.9	
Discharge Pump	7/7/2009	6.0	95	116	<1	<1	95	7.3	11		<0.2	14.0	7.2	
Treatment Pond	8/11/2005	5.0	30	37	<1	<1	30	1.0	1300		<0.1	14.0	8.5	
Treatment Pond	9/15/2005	6.0	66	81	<1	<1	66	6.1	>3000		0.8	12.9	7.1	
Treatment Pond	10/13/2005	6.0	76	93	<1	<1	76	7.2	1300		0.3	17.0	7.3	
Treatment Pond	6/29/2006	5.0	55	67	<1	<1	55	3.7	17		<0.1	9.1	6.9	
Treatment Pond	8/2/2006	5.0	75	91	<1	<1	75	4.2	700		0.1	13.2	7.2	
Treatment Pond	10/11/2006	<1	110	134	<1	<1	110	6.7	2800		0.2	20.3	7.3	
Treatment Pond	7/12/2007	8.0	90.8	111	<1	<1	90.8	4.4	1100		0.1	18.4	7.6	
Treatment Pond	7/8/2008	7.0	50	61	<1	<1	50	5.4	30		0.2	14.6	7.8	
Treatment Pond	9/18/2008	10.0	190	231	<1	<1	190	6.8	16000		0.4	23.1	8.0	
Treatment Pond	10/16/2008	10.0	130	159	<1	<1	130	7.7	2400		0.1	24.5	7.6	
Treatment Pond	7/7/2009	6.0	75	91	<1	<1	75	6.8	700		0.7	13.7	7.9	
Bloods Creek Upstream	8/11/2005	<1	30	37	<1	<1	30	0.5	80		<0.1	2.0	7.0	
Bloods Creek Upstream	6/20/2006	<1	10	12	<1	<1	10	<0.5	<2		<0.1	<1	6.3	
Bloods Creek Upstream	7/12/2007	2.0	25.6	31	<1	<1	25.6	0.5	8		<0.1	<1	7.0	
Bloods Creek Upstream	7/8/2008	2.0	24	29	<1	<1	24	<0.5	13		<0.1	<1	7.1	
Bloods Creek Upstream	7/7/2009	1.0	15	18	<1	<1	15	2.1	50		<0.2	<1	6.8	
Bloods Creek Downstream	8/11/2005	6.0	81	99	<1	<1	81	1.0	130		<0.1	2.0	6.8	

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Bloods Creek Downstream	6/20/2006	<1	15	18	<1	<1	15	<0.5	2		<0.1	<1	6.3	
Bloods Creek Downstream	7/12/2007	6.0	30	37	<1	<1	30	0.7	50		<0.1	<1	6.9	
Bloods Creek Downstream	7/8/2008	1.0	25	30	<1	<1	25	0.6	130		<0.1	<1	7.1	
Bloods Creek Downstream	7/7/2009	1.0	30	37	<1	<1	30	2.2	13		<0.2	<1	7.2	